Contributions
of the
American Entomological Institute

Volume 23, Number 2, 1987

A REVISION OF THE GENUS *MICROCHAROPS* (HYMENOPTERA : ICHNEUMONIDAE)

By

Virendra Gupta

CONTENTS

A REVISION OF THE GENUS *MICROCHAROPS* (HYMENOPTERA : ICHNEUMONIDAE)*

Virendra Gupta**
Entomology & Nematology Department
University of Florida, Gainesville, Florida 32611

ABSTRACT. A revision of the world species of *Microcharops* has been undertaken. The genus is confined to the New World. The type-species, *taitica*, was erroneously recorded from Tahiti. In the present study 23 species are recognized, including 15 new species from North and South America. *M. albistylus* (Szépligeti) is transferred to *Xanthocampoplex*. *M. australis* Kusigemati is transferred to *Eriborus*. *M. pilosus* (Szépligeti) is synonymized with *M. fulvohirta* (Cameron). Taxonomic status of *M. ussuriensis* Kasparyan could not be ascertained. Keys to the species groups and species are provided.

INTRODUCTION

Roman (1910) erected *Microcharops* to accommodate *Limneria taitica* Holmgren, 1868 and differentiated it from *Hymenobosmina* by having the scutellum flat and margined, propodeal spiracles small and subcircular, and propodeal areola lacking. The type-species (*Limneria taitica*) was described from Tahiti from specimens collected by Dr. J. C. M. Kinberg who was the zoologist on the Swedish frigate "Eugenie" sailing round the world during 1851-53 to protect commercial interests of Sweden and in addition, making botanical and zoological collections and meteorological and astronomical observations.

Persson (1971) has given an account of the localities, dates and labels of the insects collected during that voyage by "Eugenie" and stated, "The labelling of the specimens is very poor, and so are the locality data given in publications. Some of the localities given in the text and on the labels are apparently wrong, but in at least one case the errors can be explained... With reference to the specimens which are considered to be mislabelled, it should be borne in mind that most of the harbors visited were frequently visited by merchant vessels, and in this way exotic species could have been brought ashore by chance and found there by the collectors."

No specimen of *Microcharops* has subsequently been collected on Tahiti or from any other part of the Indo-Australian Area. On the other hand many described and undescribed species of the genus are available from Central and South America and a few occur in North America, strongly suggesting that the genus in confined to the New World. Specimens of the type-species (*taitica*) are also available from South and Central America. It is, therefore, certain that the type-species was mislabeled and that the genus does not occur in the Indo-Australian Area. The frigate "Eugenie" made several stops on the east and west coast of the South American continent and apparently the labels got mixed up.

---

*Florida Agricultural Experiment Station, Journal Series No. 8445.

**Address for correspondence: 3005 S. W. 56th Avenue, Gainesville, Florida 32608.

During recent years two new species have been described from the Old World, *Microcharops australis* Kusigemati, 1981 from Ryukyus and Japan, and *M. ussuriensis* Kasparyan, 1985 from eastern USSR. I have examined a paratype of *australis*, which is a species of *Eriborus* (**n. comb**). I have not examined any specimen of *ussuriensis*. Its description is in Russian and the figures do not depict any of the the diagnostic characters of *Microcharops*. I am doubtful if it is *Microcharops*, but the specimens will have to be studied to verify this.

At present 10 species of the genus are known from the Neotropical Region (including *taitica)*, of which two occur in the Nearctic Region also. In the present study 23 species are recognized, of which 15 are described as new. *Microcharops albistylus* (Szépligeti) from Peru is a species of *Xanthocampoplex* (**n. comb.**) and *M. pilosus* (Szépligeti) is synonymized with *M. fulvohirta* (Cameron). The types of both these species have been examined.

MATERIAL AND METHODS

This study began in early 1985 with a request by Dr. Jenine Powell to verify the identity of a species of *Microcharops*, previously determined as *M. bimaculata*. This species was imported from Costa Rica as a parasite of *Anticarsia gemmatalis*, bred at the Stoneville Research and Quarantine Facility, and released in Homestead area in Florida against the target pest in 1982-83. Recoveries were made in the same year as well as in 1984 when no releases were made. The specimens received from Stoneville, though close to *bimaculata*, and some others, did not match with any of the known species and it appeared to be a new species. In order to confirm the identity of the species, it soon became apparent that other related species will have to be examined, the type-specimens of which were scattered in different museums of the world. Working through the undetermined specimens in the American Entomological Institute, several undescribed species were discovered, including additional specimens of the species in question. A revision of the genus was therefore necessary. What started as an identification work ended up in a project to revise the world species of the genus in order to provide accurate identification of a parasite of importance in biological control.

Borrowing of the type-specimens was a slow process. However, almost all the type-specimens were borrowed and studied. Several hundred undetermined specimens of the genus were also borrowed from various museums. The museums that loaned the specimens together with the abbreviations used for them in the text are given below:

AEI, GAINESVILLE.	American Entomological Institute, 3005 S. W. 56th Avenue, Gainesville, Florida 32608.
DPI, GAINESVILLE.	Florida State Collection of Arthropods, Division of Plant Industry, 1911 S.W. 34th Street, Gainesville, Florida 32608.
USNM, WASHINGTON.	National Museum of Natural History, Smithsonian Institution, Washington, DC 20560.

ANSP, PHILADELPHIA	Academy of Natural Sciences of Philadelphia, 19th & The Parkway, Logan Square, Philadelphia, PA 19103.
MCZ, CAMBRIDGE.	Museum of Comparative Zoology, Harvard University, Cambridge, MA 02138.
CNC, OTTAWA.	Canadian National Collections of Insects ..., Biosystematics Research Institute, Ottawa, Ontario, Canada K1A, OC6.
BMNH, LONDON.	British Museum (Natural History), Department of Entomology, London SW7, 5BD, England.
HNHM, BUDAPEST.	Hungarian Natural History Museum, H-1088 Budapest, Baross u. 13, Hungary.
NRS, STOCKHOLM.	Naturhistoriska Riksmuseet, S-104 05 Stockholm 50, Sweden.
WAHL	Collection of Dr. David Wahl, Gainesville.

Genus **Microcharops** Roman

Microcharops Roman, 1910. Ent. Tidskr., 31: 178.
Type-species: *Limneria taitica* Holmgren; original designation.
Charopsimorpha Viereck, 1912. Proc. U. S. Natl. Mus., 42: 635.
Type-species: *Charops tibialis* Cresson; original designation. Syn. by Townes, Townes & Gupta, 1961.
Paracharops Kreibohm de la Vega, 1940. Rev. Industr. Agri. Tucumán, 3: 170.
Type-species: *(Paracharops annulata* Kreibohm de la Vega) = *bimaculata* Ashmead; monobasic. Syn. by Townes & Townes, 1966.
Taxonomy: Townes, Townes & Gupta, 1961: 248. Townes & Townes, 1966: 154. Carlson, 1979: 681. Carlson, 1979: 681.

Diagnostic features: Apical margin of clypeus thin and reflexed. Vertex strongly compressed and abruptly sloping vertically from the level of lateral ocelli. Head lenticular. Back of head, including sloping part of vertex, temples and occiput smooth and shiny. Eyes strongly emarginate a little above the antennal sockets. Mandible with a distinct flange along its ventral margin, narrowed apically, its teeth subequal to equal. Occipital carina close to occipital foramen, joining hypostomal carina far away from base of mandible, at least by a distance equal to the basal width of mandible. Scutellum flat, granulose to rugose, its lateral carinae prominent, raised and extending almost to its apex and forming a U-shaped border along the scutellum. Propodeum convex, gradually to abruptly sloping apically. Areola usually well formed but open apically. Costulae usually distinct. Median longitudinal carinae often indistinct in the petiolar area, and the sides of areola continuous with the lateral portions of the apical transverse carina so that sides of areola appear diverging and the petiolar area appear bound by the diverging carinae. Lateral longitudinal carinae absent beyond the costulae. Pleural carina separating metapleurum from propodeum usually strong. Fore wing without an areolet. Hind wing without an axillus vein. Nervellus not intercepted. Discoidella absent, or faintly represented by an unpigmented groove. Hind basitarsus with a continuous median ventral row of very closely spaced small hairs. First tergite flat

dorsally, trapezoidal in cross section, without a glymma. Ovipositor small, only slightly longer than the apical depth of abdomen, or in *longiterebra* 2.0x as long.

Relationships

Microcharops is related to other porizontine genera that have a continuous row of small compact hairs on the ventral side of hind basitarsus and without an areolet, chiefly *Eriborus, Melalophacharops* and *Dichelobosmina.* In *Eriborus* the clypeus is not impressed, its apical margin is blunt and not reflexed, the hind wing has an axillus vein, and the ovipositor is much longer than the apical depth of abdomen. It is predominantly an Old World genus. *Melalophacharops* and *Dichelobosmina* have the scutellum rather high and abruptly decurved near the apex. They also have the axillus vein in the hind wing.

Species of *Microcharops* exhibit certain relationships on the basis of which they may be arranged in various species groups as below:

Group A. THE TAITICA GROUP. Interocellar distance 2.0-2.5x the ocellocular distance. Body pubescence long and silvery white, dense on propodeum and scutellum. Pubescence on propodeum radially disposed. Malar space 0.3-0.4x the basal width of mandible. Mesopleurum punctate with interspaces shiny. Areola small, rectangular or pentagonal, open apically, or indistinct. Ovipositor short and straight or slightly curved apically. Epomia normally formed along the lower edge of pronotal collar, then extending vertically upwards. Postpectal carina normally formed and not cleft medially, may be slightly dented medially. Includes *taitica, bimaculata,* and *anticarsiae*.

Group B. THE LATIANNULATA GROUP. Interocellar distance 1.2-1.8x the ocellocular distance. Body pubescence not long or dense, white. Malar space 0.5-0.8x the basal width of mandible. Mesopleurum granulose, leathery or rugoso-punctate, without distinct well separated punctures. Body largely black. Abdomen without yellow stripes (except rarely in *plaumanni* and *latiannulata*). Tegula usually black or brownish-black. Includes *latiannulata, brasiliensis, granulosa, nigra* and *plaumanni.*

Group C. THE TIBIALIS GROUP. Interocellar distance 1.7-2.0x the ocellocular distance. Body pubescence not long or dense, white. Malar space 0.4-0.5x the basal width of mandible. Mesopleurum punctate, rugoso-punctate or striato-punctate. Areola moderate-sized, comparatively larger than in the preceding groups, crescentic or rectangular. Epomia stronger on pronotal collar. Includes *tibialis, peronota, townesi,* and *rufoantennata*.

Group D. THE FLAVICOXA GROUP. Epomia strong and flange-like along the anterior margin of pronotum. Postpectal carina deeply cleft medially. Thorax short and compact. Propodeal carinae and areola differently formed, as in Fig. 32. Interocellar distance 1.8-1.9x the ocellocular distance. Malar space 0.5 the basal width of mandible. Body pubescence not dense, white or golden brown. Includes *flavicoxa, nigricoxa*, and *longiterebra*.

Group E. THE FULVOHIRTA GROUP. Hind femur constricted basally, appearing club-shaped (Fig. 00). Body pubescence golden brown. Ovipositor slightly upcurved, short, slightly longer than the apical depth of abdomen. Nervellus slightly reclivous. Epomia strong but not flange-like, running along anterior margin of pronotal collar in lower half and then ascending vertically upwards. Postpectal carina bent medially but not cleft as in Flavicoxa Group and its sides not raised. Meso- and metapleurum punctate, punctures separate from each other and interspaces shiny. Hind coxa granulose. Frons rugose. Legs with reddish-brown marks. Includes *fulvohirta* and *similis.*

Group F. THE FULVOALARIS GROUP. Abdomen yellow. Wings slightly to moderately tinged with yellow. Body pubescence white or golden brown. Interocellar distance 1.5-1.8x the ocellocular distance. Malar space 0.4-0.8 the basal width of mandible. Epomia moderately strong, extending vertically upwards. Postpectal carina moderately dipped medially but not cleft with its sides raised. Nervellus reclivous. Ovipositor slightly to moderately upcurved, about as long as the apical depth of abdomen. Includes *fulvoalaris, hipposiderus, flavipetiolata, rufigaster, lissopleurum*, and *alvarengai.*

Key to the species groups

1. Interocellar distance 2.2-2.5x the ocellocular distance. Body pubescence long, dense, and silvery white, radially disposed on propodeum. Areola indistinct to small. Petiolar area bounded by close and convergent median longitudinal carinae ..... A. The Taitica Group

   Interocellar distance 1.2-2.0x the ocellocular distance. Body pubescence not long or dense, white to brown. Areola usually well formed, squarish, rectangular or crescentic in shape (Figs. 10, 26, 29), or propodeal carinae and areola different, as in Fig. 32 2

2. Epomia flange-like along the anterior margin of pronotal collar (Fig. 30). Postpectal carina also raised and deeply cleft medially between middle coxae (Fig. 31). Thorax short and compact. Propodeal carinae and areola different, as in Fig. 32 ..... D. The Flavicoxa group

   Epomia and postpectal carina normal to moderately strong but not flange-like. Propodeal carinae and areola normally formed, as in Figs. 10, 26, 29 ... 3

3. Hind femur constricted basally, somewhat club-shaped (Fig. 22). Body pubescence golden brown. Ovipositor slightly upcurved, slightly longer than the apical depth of abdomen. Nervellus slightly reclivous .... E. The Fulvohirta Group

   Hind femur normal (Fig. 12). Other characters various 4

4. Nervellus vertical. Body pubescence white. Abdomen largely black 5

Nervellus usually reclivous. Body pubescence golden brown to white. Abdomen largely yellow. Wings generally tinged with yellow . . . . . F. The Fulvoalaris Group

5. Interocellar distance 1.2-1.8 the ocellocular distance. Epomia weaker. Areola small, squarish or rectangular. Abdomen largely black, without yellow stripe (except in *plaumanni* and *latiannulata*). Tegula usually black . . . . . B. The Latiannulata Group

Interocellar distance 1.7-2.0x the ocellocular distance. Epomia moderately strong. Areola moderate-sized, crescentic or rectangular (Fig. 26, 29). Abdomen usually with yellow stripe on tergite 3 (except in *rufoantennata*) where antenna is rufous . . . . . C. The Tibialis Group

A. Key to the species of the Taitica Group

1. Abdomen largely yellowish-brown with black marks. In males tip of abdomen black. Areola small and squarish . . . . . 1. **taitica** Holmgren

Abdomen black with yellow stripes on basal 2 or 3 segments. Areola inconspicuous or squarish to pentagonal, small 2

2. Fore coxa largely to wholly yellowish-white. Tarsal segments basally white (hind tarsus appears black and white). Propodeum convex and rugoso-reticulate. Areola indistinct. Median longitudinal carinae indistinct. Petiolar area not depressed or bounded by carinae . . . . . 2. **bimaculata** (Ashmead)

Fore coxa black. Hind tarsus wholly black. Propodeum depressed medially and rugose to rugoso-reticulate. Areola distinct but open apically, its median longitudinal carinae convergent and bounding a groove-like narrow petiolar area . . . . . 3. **anticarsiae**, n. sp.

B. Key to the species of the Latiannulata Group

1. Clypeus seen in profile raised subapically and projecting as a median tubercle. Malar space 0.8x the basal width of mandible. Mesopleurum ruguloso-striate. Flagellum comparatively short and stout. Femora orange-yellow. Interocellar distance 1.3x the ocellocular distance. Body comparatively short and stockier . . . . . 8. **plaumanni**, n. sp.

Clypeus normal, flat medially. Malar space variable. Mesopleurum polished, minutely punctate, or leathery, granulose or rugoso-punctate 2

2. Malar space longer, 0.75-0.8x the basal width of mandible. Mesopleurum leathery and shiny, without distinct punctures or striations. All femora and tibia black to blackish-brown. Interocellar distance 1.2x the basal width of mandible . . . . . 7. **nigra**, n. sp.

Malar space 0.5-0.6x the basal width of mandible. Mesopleurum shiny and finely punctate, or granulose, or rugoso-punctate, subpolished to dull. Femora partly black and partly yellow to hind femur black wholly black . 3

3. Length 11-12 mm., slender. Mesopleurum polished with minute scattered punctures. Ovipositor sheath short and clavate. Ovipositor short and with a subapical constriction . . . . . 5. **brasiliensis** (Szépligeti)
Length 6-8 mm. Mesopleurum granulose to rugoso-punctate. Ovipositor and its sheath of normal shape (Fig. 42) 4

4. Mesopleurum rugoso-punctate. Face rugose. Hind tibia banded, yellow medially and black basally and apically. Interocellar distance 1.3-1.4x the ocellocular distance . . . . . 4. **latiannulata** (Cameron)
Mesopleurum granulose. Face granulose to rugulose. Hind tibia reddish-brown with its apex black, not banded. Interocellar distance 1.7-1.8x the ocellocular distance . . . . . 6. **granulosa**, n. sp.

C. Key to the species of the Tibialis Group

1. Mesopleurum with distinct punctures. Punctures separated from each other by 1.0-1.5x their diameter. Hind femur generally blackish in basal half and reddish-brown in apical half (or reddish inside and black outside). 2
Mesopleurum rugoso-punctate to striato-punctate. Hind femur black in *peronota* and brown in *rufoantennata* 3

2. Areola wider than long (Fig. 29), crescentic or somewhat rectangular. Nervellus vertical. Hind coxa subpolished. Scutellum rugose . 9. **tibialis** (Cresson)
Areola narrower, longer than wide or squarish (Fig. 17). Nervellus slightly reclivous. Hind coxa finely granulose. Scutellum rugoso-punctate . . . . . 11. **townesi**, n. sp.

3. Flagellum brown. Hind tibia not banded, yellowish-brown with extreme base and apex black. Hind femur brownish-black. Face rugose. Mesopleurum striato-punctate . . . . . 12. **rufoantennata**, n. sp.
Flagellum black. Hind tibia with a yellow median band. Hind femur black. Face rugulose. Mesopleurum rugoso-punctate . . . 10. **peronota** (Cameron)

D. Key to the species of the Flavicoxa Group

1. Ovipositor long and slender, upcurved, about 2.0x as long as the apical depth of abdomen. Hind coxa black. Tegula black. Body pubescence whitish. Petiole largely black . . . . . 15. **longiterebra**, n. sp.
Ovipositor normal, stout, about as long as the apical depth of abdomen, only slightly arched upwards. Coxae black or yellow. Tegula yellow. Body pubescence golden brown. Petiole largely yellow 2

2. Coxae yellow. Hind coxa sometimes with black marks. Legs and abdomen largely yellow to yellowish-brown. Flagellum brown. Mesopleurum punctate . . . . . 13. **flavicoxa,** n. sp.
Coxae black. Fore coxa often partly yellow. Abdomen black (petiole yellow basally). Legs and tegula with blackish marks. Flagellum black. Mesopleurum rugoso-punctate . . . . . 14. **nigricoxa,** n. sp.

E. Key to the species of the Fulvohirta Group

1. Mesopleurum and metapleurum punctate, punctures separate from each other and interspaces shiny. Hind coxa granulose. Frons rugose. Legs with reddish-brown marks . . . . . 16. **fulvohirta** (Cameron)
Mesopleurum and metapleurum rugoso-reticulate. Hind coxa shiny and punctate. Frons rugulose. Legs more yellow . . . . . 17. **similis** (Szépligeti)

F. Key to the species of the Fulvoalaris Group

1. Mesopleurum polished, with scattered or well separated small punctures . . . 2
Mesopleurum rugoso-punctate to punctate 3

2. Body pubescence golden brown. Postpetiole black. Hind femur 5.0x as long as deep. Face rugoso-reticulate. Body slender, about 10 mm. long . . . . . 22. **lissopleurum,** n. sp.
Body pubescence white. Postpetiole reddish-brown. Hind femur short, 4.0-4.2x as long as deep. Face finely rugose. Body small, length 6-8 mm. . . . . 23. **alvarengai**, n. sp.

3. Propodeal areola large, horse-shoe shaped, its sides rounded. Area within areola depressed and rugose. Body pubescence golden white. Wings not or very slightly tinged yellow. Mesopleurum punctate. Postpetiole reddish. Hind tibia banded . . . . . 18. **hipposiderus**, n. sp.
Propodeal areola small, hexagonal or rectangular, area within it not depressed. Mesopleurum rugoso-punctate. Body pubescence yellowish-brown or white. Wings tinged with brown or yellow 4

4. Tergites 1-4 red. Body pubescence white. Hind femur and tibia red, tibia not banded. Malar space long, about 0.8x as long as the basal width of mandible. Hind femur slender, 5.7-5.8x as long as deep. Ovipositor small and straight . . . . . 21. **rufigaster**, n. sp.
Abdomen yellow. Petiole black or yellow. Body pubescence golden brown. Malar space 0.4-0.5x the basal width of mandible 5

5. Tergite 1 yellow. Tergite 2 with a black apical line. Wings lightly tinged with yellow. Second abscissa of cubitus 0.4x the intercubitus. Hind femur 5.2-5.3x as long as deep. Length 6-8 mm. . . . . 20. **flavipetiolata**, n. sp.
Tergite 1 black (apex of postpetiole reddish). Tergite 2 with a black basal triangular mark in addition to a black apical line. Wings tinged with brown. Second abscissa of cubitus 0.5-0.55 as long as intercubitus. Hind femur slender, 5.7x as long as deep. Length 10-11 mm. . . . . 19. **fulvoalaris**, n. sp.

Description of species

1. **Microcharops taitica** (Holmgren) (Figs. 1, 2, 45)

Limneria taitica Holmgren, 1868. Kongliga Svenska Fregatten Eugenies Resa, 2: 416. F. des. Lectotype (hereby selected and designated): Female, Society Is.: Tahiti (STOCKHOLM). Examined. [Erroneous record; certainly from Central or South America].
Limnerium taiticum: Dalla Torre, 1901. Catalogus Hymenopterorum, 3: 105. n. comb.
Microcharops taitica: Roman, 1910. Ent. Tidskr., 31: 178. F. n. comb., des.
Microcharops taitica: Townes, Townes & Gupta, 1961. Mem. Amer. Ent. Inst., 1: 248. cat., distr. Society Is.
Microcharops taitica: Gupta, 1987. Mem. Amer. Ent. Inst., 41: 452. Not Indo-Australian.

Male and *female:* Body covered with long silvery pubescence. Face and clypeus rugose, orbital borders and apical margin of clypeus smoother. Malar space 0.3-0.4x the basal width of mandible. Frons and ocellar area rugulose. Vertex granulose (Fig. 45). Interocellar distance 2.4-2.5x the ocellocular distance. Pronotum with irregular striations in the middle and subpolished and with scattered punctures dorsally. Mesoscutum rugoso-punctate on a granular surface, its notaular areas somewhat reticulate. Scutellum rugose. Mesopleurum polished, uniformly punctate, punctures separated by about 1.0-1.5x their diameters. Area below subtegular ridge and in front of shiny speculum with parallel striations that are somewhat oblique with the horizontal axis of body. Striations below speculum oblique and irregular (Fig. 1). Mesosternum punctate on a granuloso-mat surface. Sometimes sculpture of mesopleurum a little irregular and coarser. Metapleurum subpolished, its upper part indistinctly punctate, juxtacoxal carina irregular, juxtacoxal area rugoso-reticulate. Propodeum reticulate and with long hairs (Fig. 2), its pleural and basal areas rugulose. Areola small, pentagonal, open apically. Median longitudinal carinae distinct some distance in the petiolar area. Costulae distinct. Apical transverse carina partly distinct laterally. Lateral longitudinal carina distinct basally. Propodeal spiracle oval to slightly elongate-oval. Hind coxa finely granuloso-mat and subpolished. Hind femur about 5.3x as long as deep. Nervulus postfurcal. Second abscissa of cubitus about 0.4-0.6x the intercubitus. Nervellus vertical. Postpetiole and tergite 2 granuloso-mat. Rest of the tergites subpolished and finely mat. Ovipositor short, slightly upcurved.

Black with apical half of abdomen yellowish-brown. Palpi, scape, pedicel, tegula, wing bases, and trochanters, yellow. Scape and pedicel with a black lateral line. All coxae black. Fore and middle legs otherwise largely yellowish-brown with

blackish marks on middle leg. Hind trochanter with blackish marks, femur brown with blackish marks basally, tibia black basally and apically and with a large yellow mark in-between, and tarsus black with bases of joints yellow. Tergites 1 and 2 black. Gastrocoeli and a subapical band on tergite 2 yellow, apex of tergite 2 with a shiny dark black line. Tergite 3 and onwards largely yellowish-brown but with blackish marks, the extent of which vary. Sternites 1-3 yellow, rest yellowish-brown with black marks.

Length: 6-8 mm.; fore wing 3.4-4.5 mm.; ovipositor about 1 mm.

Specimens examined: "TAITI", Kinb., 4 females (syntype series) (STOCKHOLM). One female with a red type label selected and designated as the lectotype. Over 250 males and females from: COLOMBIA (Anchicaya; Atuncela; Buga Valle; Candelaria; Cali; Cerritos; Finca San Luis, 1010 m., Palmira Valle, 1006 m.); ECUADOR (Guayas, 20 km. N. Playas; Bahiade Caraguez; La Toma, W. Loja, 1500 m.; Tilandia, 800 m.); SURINAM (Paramaribo; Ma Retraite; Charles Burgkrepie); TRINIDAD (Curepe). (AEI, DPI, CNC, USNM). The only reared specimen examined is from Colombia: Cerritos, 1 female, 26. II. 1975 (USNM).

Host: Anticarsia gemmatalis.

Collection dates: January - July and November - December, between 1963-77

Distribution: This species has a Caribbean distribution with extensions to Surinam and Ecuador.

2. **Microcharops bimaculata** (Ashmead) (Figs. 3, 4, 12)

Charops bimaculata Ashmead, 1895. Proc. Zool. Soc. London, 1895: 778. F. des. Type: F, Grenada: Mount Gay Estate (leeward side) (LONDON). Type examined.

Charops unicinctus Ashmead, 1900. Trans. Ent. Soc. London, 1900: 272. F. des. Type: F, Grenada: Mount Gay Estate (leeward side) (LONDON). Type examined. Syn. by Townes & Townes, 1966: 155.

"Charops" bimaculata: Morley, 1915. Ann. & Mag. Nat. Hist., (8) 16: 339. des.

Charops unicincta: Wolcott, 1936. J. Agri. Univ. Puerto Rico, 20: 515. Puerto Rico.

Paracharops annulatus Blanchard, 1939. Bol. Informativo Dir. Sanid. Veg., 2 (7): 36. Agrentina: Tucumán. Host: caterpillar on leaves of cotton. *Nomen nudum.*

Paracharops annulatus Kreibohm de la Vega, 1940. Rev. Industr. Agri. Tucumán, 3: 170. [F]. des. as fig. Type: F, Argentina: Tucumán (?CASTELAR). Host: *Alabama argillacea*. Syn. by Townes & Townes, 1966: 155.

Paracharops annulatus: Blanchard, 1941. Bol. Informativo Dir. Sanid. Veg., 4 (15): 28. Argentina: Reconquista in Santa Fe. Host: *Alabama argillacea*.

Paracharops annulatus Blanchard, 1942. Ann. Soc. Cient. Argentina, 134: 107. "M" = F. des., fig. Type: F, Argentina: Tucumán (CASTELAR). Argentina: Santa Fe Prov. Host: *Alabama argillacea.* Preocc. by *annulatus* Kreibohm de la Vega, 1940.

Charops unicinctus: Bruner, Scaramuzza & Otero, 1945. Catálogo de los Insectos que atacan a las plantas económicas de Cuba, p. 62. Host: *Hippia insularis.*

Charopsimorpha unicincta: Townes, 1948. *In* Wolcott: J. Agri. Univ. Puerto Rico, 32: 765. n. comb.

Charopsimorpha unicincta: Wolcott, 1948. J. Agri. Univ. Puerto Rico, 32: 768. Puerto Rico: San Juan.

Charopsimorpha annulata: Townes & Townes, 1951. U. S. Dept. Agri., Agri. Monogr., 2: 386. n. comb.

Charopsimorpha unicincta: Short, 1959. Proc. U. S. Natl. Mus., 110: 488. fig. of larva.

Microcharops bimaculata: Townes & Townes, 1966. Mem. Amer. Ent. Inst., 8: 155. n. comb., syn. Argentina, Grenada, Puerto Rico.

Microcharops bimaculata: Carlson, 1979. Catalog of Hymenoptera in America north of Mexico, 1: 681. cat., distr. Hosts: *Alabama argillacea, Plathypena scabra.*

Female: Body covered with long silvery hairs, particularly on face and propodeum. Face finely granuloso-punctate, smoother along orbital margins. Clypeus granulose, smoother apically. Malar space 0.33x the basal width of mandible. Frons rugulose. Ocellar area finely rugulose. Vertex granulose. Interocellar distance 2.3-2.5x the ocellocular distance. Pronotum striate medially, subpolished above. Mesoscutum and scutellum finely uniformly ruguloso-punctate. Mesopleurum (Fig. 3) finely punctate on a smooth and shiny surface, interspace 1.0-1.5x the diameter of punctures, with parallel striations in front of smooth speculum, these striations rather long and parallel to the horizontal axis, striations on the lower side of speculum oblique. Mesosternum punctate on a subpolished surface. Sternaulus moderately deep and short. Metapleurum irregularly punctate above and rugose in the juxtacoxal area. Juxtacoxal carina incomplete and often indistinct. Propodeum convex and rugoso-reticulate. Propodeal carinae indistinct except costulae and sides of areola basad of costulae (Fig. 4). Apical transverse carina faintly visible laterally. Areola incompletely formed or indistinct. Propodeal spiracle oval. Hind coxa subpolished and very finely granulose. Hind femur 5.0-5.3x as long as deep. Nervulus distad of basal vein by about 0.3 its length, slightly curved but almost vertical. Second abscissa of cubitus about 0.6x the length of first intercubitus. (positions of nervulus and intercubitus variable). Nervellus almost vertical. Abdomen subpolished with postpetiole and tergite 2 finely granulose, with their apices smooth. Tergite 3 mat. Rest of tergites with short pubescence. Ovipositor slightly upcurved and as long as the apical depth of abdomen.

Black. Palpi, mandible, scape, pedicel, tegula, wing bases, fore leg, gastrocoeli, and basal 0.4 of tergite 3, yellow. Sometimes tergite 2 with a faint subapical yellow line. Scape and pedicel with a dorsal black line. Flagellum brown. Fore coxa white and with blackish-brown marks at base. Middle and hind coxae black. Fore leg with light brownish marks. Middle femora blackish basally and brownish dorsoapically. Middle tibia and tarsal segments blackish-brown apically. Hind leg largely black with trochanter, trochantellus, extreme base of femur, middle of tibia and bases of tarsal segments, yellow. Sternites 1-3 yellow.

Male: Essentially similar to the female but with coarser mesoscutal sculpture and propodeum coarsely reticulate and densely hairy. Fore coxa yellow. Middle coxa partly yellow and partly black. Hind coxa black. Middle leg without blackish marks. Hind femur largely orange-brown.

Length: 6-8 mm.; fore wing 4-5 mm.; ovipositor 1 mm.

Specimens examined: Many males and females from: U. S. A. (Texas: Brownesville; Donna; Expraza; Higaldo Co.: McAllen Valley; Port Larvaca; Victoria; Montana: Mt. Vernon); ARGENTINA (Horco Mollo near Tucuman; Yuto; Oran; Positos, Salta; San Pedrode, Colalao); BRAZIL (Cabeca do Veado, 1100 m., Dist. Federal Estacao Florestal; Encruzilhada, Bahia, 960 m.; Nova Teutonia; Pedra

Azul, M. Gerais); COSTA RICA (Guanacaste Palo Verde Natl. Park); COLOMBIA (Dept. Valle: Atuncela; Villa Vicencio: Meta); JAMAICA (Try, Good Hope); MEXICO (Sonora Alamos; Sinaloa Guamuchil); PANAMA (Canal Zone, Tabernilla); PERU (La Libertado Sand Hills, E. Laredo; Piura Querecotillo); TOBAGO (Adelphi); TRINIDAD (Aranjuez; Caroni East; Centeno; Curepe, Simla Fields, Arima Valley, Sta. Margarita Circular Road; Morne Bleu, 2700 ft.; St. Augustine); VENEZUELA (Sanare). Also occurring on Grenada, Cuba, and Puerto Rico. (AEI, DPI, CNC, USNM, MCZ, WAHL).

Host reared specimens are from: Montana: Mt. Vernon, 1 male, IX. 1972, B. Putter, ex. *Plathypena scabra*; Texas: Brownsville, 1 male and 1 female, IV. 1914, C. L. Scoll, ex. *Alabama argillacea*; Trinidad: St. Augustine, 1 female, X. 1937, ex. *Hellula* larva; (all USNM).

Hosts: Alabama argillacea, Hellula sp., Hippia insularis, Plathypena scabra.

Collection dates: The earliest collection dates on the specimens examined are: June 1911, April 1914, July 1927, August 1935, and April 1938, all from Texas (Specimens in U.S.N. M., Washington). There is also a specimen there from Mt. Vernon, Montana collected in November 1972. It has been collected in almost all the months in Central and South America.

Distribution: Apparently widely distributed in West Indies and Central and South America, and also extending to U.S.A.

3. **Microcharops anticarsiae**, n. sp. (Figs. 5, 6, 27)

Related to *Microcharops bimaculata* in general coloration and structure, but differs in having the areola more fully formed, with median longitudinal carinae continuing as parallel or converging carinae to some distance bounding the basal portion of petiolar area. The petiolar area is groove-like. The fore coxa black. The hind tarsus is wholly black.

Female: Body covered with long silvery pubescence. Face, frons and clypeus rugulose (Fig. 27). Malar space 0.33 the basal width of mandible. Vertex granulose. Ocellar area rugulose. Interocellar distance 2.4x the ocellocular distance. Pronotum subpolished, with fine scattered punctures dorsally and irregular striations medially. Mesoscutum rugoso-punctate, the median area a little finely so. Scutellum shallowly rugulose and more hairy. Mesopleurum largely punctate and shiny, punctures small and generally separated from each other by about 1.0-1.2x their diameter. Area below subtegular ridge and in front of speculum with short striations that are slightly oblique with reference to the horizontal axis (Fig. 5). Speculum shiny. Mesosternum finely uniformly punctate on a mat and subpolished surface. Metapleurum and pleural area of propodeum subpolished and shallowly and irregularly punctate. Juxtacoxal carina irregular and often incomplete. Juxtacoxal area with rugosities. Propodeum rugose and hairy (Fig. 6), somewhat rugoso-reticulate medially. Area basad of basal transverse carina indistinctly rugose. Areola small, squarish or pentagonal and open apically. Median longitudinal carinae a little convergent and continuing to some distance, bounding part of the groove-like petiolar area. Costulae distinct. Apical transverse carina rather indis-

tinct and visible only in the pleural areas and partly in the lateral areas. Lateral longitudinal carina distinct only basolaterally. Propodeal spiracle elongate-oval. Hind coxa shiny and with setiferous punctures. Hind femur about 5.0x as long as deep. Nervulus distad of basal vein by about 0.3-0.4 its length and slightly arched and vertical. Second abscissa of cubitus about 0.5-0.7 the length of intercubitus. Nervellus almost vertical. Petiole polished, a little flattened dorso-ventrally. Postpetiole polished and very finely granulose. Tergite 2 mat except apically. Other tergites subpolished.

Black. Palpi, mandibles except teeth, ventral side of scape and pedicel (extent variable), tegula, wing bases, fore and middle trochanters, and sternites 1-3, yellow. All coxae black. Fore leg yellowish-brown with blackish marks on femur and brownish marks on tarsus. Middle leg largely blackish brown with tibia yellow except apically. Hind leg black with trochantellus, a broad band on tibia, and base of basitarsus, yellow. Hind femur wholly black to reddish-brown. Black marks on fore and middle legs variable. Thyridia and base of tergite 3 yellow to yellowish-brown. Tergite 2 often with a pale subapical line and its apex with a glistening black line.

Male: Essentially similar to the female with propodeal sculpture reticulate, with basal transverse carina strong and areola incomplete. Sculpture of head and thorax a little finer. Fore coxa sometimes partly yellow. Fore and middle femora usually yellowish-brown. Hind femur reddish to blackish. In specimens from Brazil the hind femur is partly black and partly brown.

Length: 6-8 mm.; fore wing 4-6 mm.; ovipositor about 1.0 mm.

Holotype: Female, COSTA RICA, ex *Anticarsia gemmatalis* Hübner in soybean; shipped to USA in 1982 and reared at Stoneville, Mississippi (GAINESVILLE). *Paratypes:* Many males and females from Costa Rica with similar data as the holotype. Paratypes also in DPI, Gainesville, from Costa Rica: ICPM Project, Lab. reared from *Anticarsia gemmatalis* on soybean. Many other males and females (not designated paratypes) from: ARGENTINA (Horco Molle, Tucuman; Oran, Abra Grande; Positos, Salta; San Pedrode, Colalao; Vespucio, Salta); BOLIVIA: Puente Villa, Yungas); BRAZIL (Conceidaode Macabu, Rio de Janeiro; Montevideo, S. A. Parasite Lab.; Nova Teutonia; Cab de Veado; Linhares, E. Santo; Santa Catarina; Sinop, M. Grosso; Repressa, Rio Grande, Guanabara; Conceicaode, Rio de Janeiro); CHILE (Arica, Sancache, Valle de Azapa); COSTA RICA (Turrialba; Santa Rosa Park, Guanabara; Sirena, Osa Pen.); ECUADOR (Cumbaratza); GUATAMALA (San Cristobal); JAMAICA (Try; Good Hope; Hardwar Gap, 4000 ft.); MEXICO (Alamos, Sonora; Mustee, 400 m., Chiapas; N. E. Huixitia, 3000 ft., Chiapas; Catemaco, 1100 ft., Veracruz; Chilpancingo, 3700 ft., Guerrero; San Blas, Nayarit; Chipinque Mesa nr. Monterrey, Neuvo Leon, 5400 ft.; PANAMA (Pte. Armuelles); PARAGUAY (Canendiya a Katuete nr. Lossau, reared from *Anticarsia gemmatalis*; Carumbe); PERU (Avispas, nr. Marcapata; Limatamiza Cusco; Surinam (Paramaribo, Ma Retraite; Zanderij); TOBAGO (Adelphi); TRINIDAD (Curepe, Sta. Margarita; Morne Bleu, 2700 ft.; Simla Field Sta., Arima Valley); VENEZUELA (Tucuco, Zulia; San Estaban nr. Puerto Cabello); U.S.A. (California: Purissima, Baja California; Texas: Higaldo Co., McAllen; Bentsen, Rio Grande Valley; Brownsville) (AEI, DPI, USNM, CNC, MCZ).

Reared specimens are from Costa Rica, ex. *Anticarsia gemmatalis*; Paraguay: Canendiya a Katuete, Lossau, ex. *Anticarsia gemmatalis* by Hasselbath; and Brazil: Montevideo, S. A. Parasite Lab, March-April, H. L. Parker, ex. *Alabama argillacea.*

Hosts: Anticarsia gemmatalis, Alabama argillacea.

Collection dates: The earliest collected specimen is from Baja California, Collected there in October 1923 (USNM). In Texas it has been collected in November-December, 1978 to 1981. In Central and South America it has been collected in almost every moth.

Variations: This species exhibits considerable variation in the coloration of legs, and to some extent in the sculpture of mesopleurum and propodeum. Only the reared specimens have, therefore, been designated paratypes. A male and a female (AEI), and two females (DPI), all from Dominican Republic are much darker in color and apparently represent a darker race of the species. They have blackish tegula, almost wholly black abdomen, and black hind leg except for a small yellow patch on the tibia in the female. Several specimens from Trinidad (CNC) have the fore coxa more extensively yellow marked. One specimen from Jamaica also exhibits similar condition. Some specimens from Argentina have a wider areola and coarser mesopleurum.

Distribution: Distributed widely in South and Central America and West Indies. Also apparently occurring in Southern California and Texas before its importation for biological control of the velvetbean caterpillar.

4. **Microcharops latiannulata** (Cameron) (Fig. 11)

Charops latiannulatus Cameron, 1911. Timehri, (3) 1: 184. "M" = F. des. Type: Female, British Guinea (LONDON). Type examined.
Microcharops latiannulata: Townes & Townes, 1966. Mem. Amer. Ent. Inst., 8: 155. n. comb.

Mesopleurum rugoso-punctate. Flagellum and tegula blackish. Tegula may be testaceous. Propodeal carinae moderately strong. Areola small, its sides diverging apically and enclosing an excavated petiolar area. Sculpture of face and thorax tending to be rugose at places.

Male and *female:* Face rugose medially, tending to be rugulose in some specimens. Orbital borders granulose. Clypeus granuloso-rugose. Malar space 0.55x the basal width of mandible. Frons granuloso-rugose. Vertex granulose. Ocellar area rugulose. Interocellar distance 1.35-1.4x the ocellocular distance. Pronotum rugoso-striate centrally, its upper margin smoother. Epomia strong in lower half, slightly curved medially and erased dorsally. Mesoscutum granuloso-rugose, notaular areas rugose to somewhat reticulate. Scutellum rugose. Mesopleurum (Fig. 11) rugoso-punctate. Area below subtegular ridge and in front of speculum with parallel but oblique striations, the two sets of striations converging. Mesosternum granuloso-punctate. Metapleurum smoother and subpolished dorsad of juxtacoxal carina, area close to that carina rugose. Propodeum rugoso-reticulate, its lateral and basal areas smoother and dull. Propodeal carinae strong. Areola small, squarish (type) or sides diverging posteriorly and open. Median longitudinal carinae bounding part of excavated petiolar area, then merging with apical portions

of lateral longitudinal carinae. Nervulus slightly distad of basal vein and vertical. 2nd abscissa of cubitus usually less than 0.5 the intercubitus. Nervellus almost vertical or slightly incurved. Hind coxa subpolished. Hind femur about 4.5x as long as deep. Abdomen subpolished. Postpetiole and tergite 2 weakly mat. Gastrocoeli irregularly oval and touching lateral margins. Ovipositor short and straight.

Black. Flagellum black. Tegula testaceous to blackish. Mandible, scape, pedicel (except for a lateral black line), and fore leg (except coxa and trochanter), yellow. All coxae black. Middle femur, tibia and tarsus partly blackish and partly yellowish-brown; black marks more on femur. Hind leg black with a yellow broad submedian band on tibia. Sternites 1-2 yellow and granulose. Sternite 3 yellow with wide black patches. Gastrocoeli yellow. Tergite 3 narrowly yellowish-black basally. Sometimes middle and hind legs more extensively black and abdomen varying from wholly black to brownish marks on tergites 2 and 3. Body pubescence white, hairs on face, scutellum and propodeum longer.

The males tend to have darker coloration and coarser body sculpture.

Length: 7-8 mm.; fore wing 5 mm.; ovipositor about 1 mm.

Specimens examined: BRITISH GUINEA: 1 female (type), No. 3.b.1343 (LONDON). ARGENTINA: Horco Molle, Tucuman, 1 female, VI. 1968, C. C. Porter (CAMBRIDGE). BRAZIL: Serra da Bocaina, 1600-1650 m., S. J. Barreiros, 2 males and 1 female, XI. 1967, XI. 1968, II. 1971. Nova Teutonia, Santa Catarina, 1 male, 20. XII. 1952, F. Plaumann. PARAGUAY: Pirapo, 2 females, 29. XII. 1971, L. Pena. VENEZUELA: San Estaban, near Puerto Cabello, 1 female, 22. I. 1940, P. J. Anduze. (All GAINESVILLE).

Distribution: South America.

5. **Microcharops brasiliensis** Szépligeti

Charops brasiliensis Szépligeti, 1906. Ann. Mus. Natl. Hungarici, 4: 129. M, F. des. Lectotype (hereby selected and labeled): Female, Brazil: Blumenau (BUDAPEST). Examined.
Microcharops brasiliensis: Townes & Townes, 1966. Mem. Amer. Ent. Inst., 8: 155. n. comb. Brazil.

This is a larger sized species (11-12 mm. long), with black body and slightly tinged wings. The mesopleurum is polished with minute punctures and the propodeal areola is small, pentagonal and open apically.

Male and *female:* Face, frons and ocellar area finely rugose. Clypeus flat and wider, its apical margin slightly emarginate. Ocellocular area granulose. Malar space 0.5x the basal width of mandible. Interocellar distance 1.4-1.5x the ocellocular distance. Mesoscutum ruguloso-punctate on a granular surface, notaular areas rugose. Scutellum rugose. Pronotum and mesopleurum largely smooth and shiny, with a few strans-striations in the middle of pronotum and minute well separated punctures on mesopleurum. Epomia sharper on the pronotal collar. Mesosternum granuloso-punctate and subpolished. Metapleurum impunctate and shiny in the upper half and with shallow rugosities in the lower half; juxtacoxal carina sharply defined. Pleural area of propodeum subpolished and with minute punctures. Propodeal spiracle oval, moderate sized. Propodeum dorsally rugoso-

reticulate. Propodeal carinae sharp except mid apically. Areola pentagonal, open apically. Costulae strong. Median dorsal carinae indistinct in apical half. Hind coxa polished and with minute punctures. Hind femur 5.5x as long as deep. Second abscissa of cubitus about 0.6-0.65 as long as the intercubitus. Nervellus almost vertical. Petiole quadrate in cross-section, flattened dorsally. Postpetiole and tergite 2 finely granulose. Rest of the tergites subpolished. Ovipositor sheaths small and somewhat clavate apically. Ovipositor short, less than apical depth of abdomen and with a subapical constriction.

Black. Body pubescence white. Scape, pedicel, mandible, and fore and middle legs largely, yellowish-brown. Flagellum and tegula blackish-brown. All coxae black, and trochanters brownish-black to black (hind one). Hind femur, tibia and tarsus brownish-blackish, with femur and tibia brownish marks. Wings lightly tinged with yellow; their inner sides lighter in color. Petiole and tergite 2 dorsally largely, black. Gastrocoeli, apical and lateral borders of tergite 2 and sternites 1-3 yellow. Tergite 3 onwards black-brown. Ovipositor sheath blackish.

Length: 11-12 mm.; fore wing 8 mm.; ovipositor 2 mm.

Specimens examined: BRAZIL: Blumenau, 3 females and 1 male (syntypes) (BUDAPEST). One syntype has been labeled as a Lectotype.

Distribution: South America.

6. **Microcharops granulosa**, n. sp. (Figs. 9, 10)

This species has a largely granulose head and thorax. The interocellar distance is 1.7-1.8x the ocellocular distance. The hind tibia is reddish-brown, without a band, but with its apex black.

Male and *female:* Face granuloso-rugulose, orbital borders and apical margin of clypeus smoother. Clypeus rugulose. Malar space 0.5-0.6x the basal width of mandible. Frons granuloso-rugulose. Vertex granulose. Interocellar distance 1.7-1.8x the ocellocular distance. Pronotum granulose, striate centrally. Epomia short, inconspicuous, confined to the anterior margin of pronotum. Mesoscutum granulose, rugose along notaular areas. Scutellum rugose. Mesopleurum (Fig. 9) granulose and with striations; striations below subtegular ridge less oblique, the first 2-3 striae parallel to subtegular ridge. Mesosternum dull granulose. Metapleurum granulose. Juxtacoxal carina usually complete demarcating the juxtacoxal area which is generally rugose. Propodeum (Fig. 10) rugose, appearing reticulate at places, its basal and pleural areas rugulose. Areola small, basally rounded and closed apically. Petiolar area somewhat excavated and bounded by diverging carinae. Nervulus almost interstitial with basal vein and slightly inclined. Second abscissa of cubitus about equal to intercubitus. Nervellus vertical. Coxae granulose. Hind femur about 4.7x as long as deep. Abdomen subpolished. Postpetiole and basal half of tergite 2 finely granuloso-mat. Gastrocoeli small, oval. Ovipositor short and straight.

Black. Body pubescence white, not dense. Tegula brownish-black. Flagellum brownish to brownish-black. Palpi, mandible, scape and pedicel except for faint blackish dorsal stripes, fore and middle femora largely, hind femur apically, and all

tibiae and tarsi, yellowish-brown. Coxae black. Trochanters black with those of fore legs brown. Hind tibia uniformly yellowish-brown with blackish apex, without sub-basal black or median yellow areas. (In some specimens extreme base of tibia blackish). Leg color variable with hind femur sometimes wholly black. Sternites 1-2 wholly and 3-4 partly, yellow.

In specimens from Mexico the hind femur is black and the nervulus is slightly distad of basal vein.

Length: 5-8 mm.; fore wing 4-5.5 mm.; ovipositor 1 mm.

Holotype: Female, BRAZIL: Serra da Bocaina, 1600 m., S. J. Barreiros, 4-7. XI. 1967, M. Alvarenga & Seabra (GAINESVILLE). *Paratypes:* Same locality and collectors as the holotype, 10 females, XI. 1967, 1968, 1969 (GAINESVILLE); 1 female, 13-17. I. 69, Porter (CAMBRIDGE). COSTA RICA: Santa Rosa Park, Guanabara, 1 female, 4. XI. 1977, D. H. Janzen (GAINESVILLE); Iica Turrialba, VIII. 1963, C. C. Porter (CAMBRIDGE). VENEZUELA: Tuccuco, Zulia, 1 female, 28. IV. 1981, H. K. Townes (GAINESVILLE). MEXICO: Dgo., 24 mi. W. La Ciudad, 7000 ft., 3 females, 16-25. VII. 1964, W. R. Mason (OTTAWA); Mexico: Michoacan, Huetamo Highway 15, 1 male, 7. III. 1972, Parker & Miller (WASHINGTON).

One male each from Peru and Ecuador are doubtfully placed under this species.

Distribution: South and Central America.

7. **Microcharops nigra**, n. sp. (Figs. 7, 8)

Body black. Tegula black. Interocellar distance 1.2x the ocellocular distance. Malar space 0.7-0.8x as long as basal width of mandible. Mesopleurum leathery, without punctures. Propodeum rugoso-reticulate.

Female: Face (Fig. 8) finely rugulose. Orbital borders and clypeus smoother, granulose. Malar space 0.75-0.8x the basal width of mandible. Frons finely rugose, sculpture coarser than that of face. Vertex and ocellar area granulose. Interocellar distance 1.2x the ocellocular distance. Pronotum subpolished, irregularly striate, its posterior corner with fine granulations. Epomia short and weak, confined along the pronotal margin. Mesoscutum granulosely rugulose, finely rugose in notaular areas. Scutellum rugose on a shiny surface. Mesopleurum (Fig. 8) leathery in texture, shiny, surface smooth except for fine granulations at places; area below subtegular ridge with weak and below speculum with moderately strong striations. Mesosternum very finely and minutely granuloso-punctate. Metapleurum shiny and with irregular shallow rugosities. Juxtacoxal carina weak, incomplete. Propodeum largely rugoso-reticulate, its basal areas shiny, mat or indistinctly rugulose. Propodeal carinae rather strong. Areola medium sized, nearly as wide as long, open apically. Nervulus almost interstitial and slightly inclined. Second abscissa of cubitus about 0.6 the length of intercubitus. Nervellus slightly reclivous. Hind coxa shallowly granulose and subpolished. Hind femur about 4.5x as long as deep. Abdomen polished. Postpetiole flat dorsally. Postpetiole and tergite 2 shallowly mat. Gastrocoeli small and oval in shape. Ovipositor short and straight.

Black. Body pubescence white, not dense. Tegula black. Legs black except for parts of fore leg. Palpi, mandible, scape and pedicel except for black stripes, and sternites 1 and 2, yellow. Fore femur and tibia with blackish marks. Fore and middle tarsi brownish. Sternite 3 wholly brown or with yellow patches.

Male: Essentially similar to the female but propodeum more reticulate and scape and fore femur and tibia more brownish than black.

Length: 6-7 mm.; fore wing 5-5.5 mm.; ovipositor about 1 mm.

Holotype: Female, BRAZIL: Represa do Rio Grande, Guanabara, VII. 1966, M. Alvarenga (GAINESVILLE). *Paratypes*: Brazil: Nova Teutonia, Santa Catarina, 1 female, XI. 1968, and 1 male, XII. 1970, F. Plaumann (GAINESVILLE). Brazil: Nova Teutonia 300-500 m., 2 males and 6 females, I, II and XII, 1966, F. Plaumann (OTTAWA). Brazil: Represa do Rio Grande, 1 male (without head), VI. 1967, M. Alvarenga (GAINESVILLE). ECUADOR: Napo & Coca Rivers, 1 female, 2-10. V. 1965, L. Pena (GAINESVILLE).

In addition a male from Bolivia: Yungasdel Palmer, Chapare, 2800 m. (AEI), one female from Panama: Canal Zone: Barro Colorado Is. (CNC) and a female from Colombia: Dept. Vale, nr. Santa Maria (DPI) are also placed here, though they do not entirely agree with the above description. They appear to be intermediates between *nigra* and *granulosa*.

Distribution: South and possibly Central America.

8. **Microcharops plaumanni**, n. sp.

Male and *female:* Related to *M. latiannulata, granulosa* and *nigra,* but different from them in the following combination of characters:

Clypeus raised subapically in the middle, seen in profile appears projecting (distinctive character). Flagellum comparatively stouter and more hairy. Scape and pedicel shorter in length and subglobose. Malar space 0.8x the basal width of mandible. Face and clypeus rugose. Interocellar distance 1.3x the ocellocular distance. Mesopleurum shallowly ruguloso-striate. Propodeum rugose-reticulate. Propodeal carinae strong. Median longitudinal carinae widely divergent beyond areola. Areola moderate sized, pentagonal, open apically. Nervulus slightly distad of basal vein and a little curved. Second abscissa of cubitus 0.6x the intercubitus. Nervellus vertical or slightly reclivous. Hind coxa subpolished, shallowly granulose. Hind femur about 4.5x as long as deep. Postpetiole and tergite 2 flat dorsally and wide. Tergite 2 1.6-1.7x as long as wide in female and 1.5-1.6x as long as wide in male. Abdominal tergites smooth and polished.

Black. Wings slightly yellow tinged. Body pubescence white. Tegula brown in female and yellowish-brown in male. Scape and pedicel brown. Legs reddish, with coxae, middle and hind trochanters, hind tibia apically, and hind tarsus black. Middle tarsus and apical segments of fore tarsus brown. Hind leg in one male blackish.

Length: 6-7.5 mm.; fore wing 4-5 mm.; ovipositor about 1 mm.

Holotype: Female, BRAZIL: Nova Teutonia, 300-500 m., XII. 1968, Fritz Plaumann (OTTAWA). *Paratypes:* 5 males, 1 female, Brazil: Same data as the

holotype, III. 1947, II. 1966, III. 1966, XI. 1968, and XII. 1968. Brazil: Mato Grosso, Sinop, 1 male, XI. 1975 (OTTAWA). Brazil: Nova Teutonia, Santa Catarina, 1 male, IV. 1952, F. Plaumann; Nova Teutonia, 350-500 m., 1 female, XII. 1968 (GAINESVILLE).

The female from Brazil: Mato Grosso has a wide white band on tergite 2 and the tegula is yellow. These colors appear washed out. Another male from Peru: Avispas, nr. Marcapata, IX. 1962, L. Pena (GAINESVILLE), also has the above mentioned characters, but in addition has the hind femur, tibia and tarsus blackish-brown. It is tentatively placed under this species.

Distribution: South America.

9. **Microcharops tibialis** (Cresson) (Figs. 18, 28, 29)

Charops tibialis Cresson, 1872. Trans. Amer. Ent. Soc., 4: 173. M. des. Type: M, U.S.A.: Texas: Bosque Co. (WASHINGTON). Type examined.

Limneria? insolens Cresson, 1874. Proc. Acad. Nat. Sci. Philadelphia, 1873: 386. M, F. des. Lectotype (designated by Cresson, 1916): F, Mexico: Orizaba (PHILADELPHIA). Mexico: Cordoba. Syn. by Townes, 1945. Type examined.

Charops tibialis: Riley & Howard, 1890. Insect Life (USDA), 3: 155. Host: Tortricid.

Charops apaturae Riley & Howard, 1890. *In*: Riley & Howard, Insect Life (USDA), 3: 155. M. U.S.A.: Illinois. Host: *Asterocampa clyton*. *Nomen nudum.*

Charops apaturae: Ashmead, 1896. Trans. Amer. Ent. Soc., 23: 193. [M]. des., fig. Type: M, U.S.A.: Illinois: Fairburg (WASHINGTON). Host: *Asterocampa clyton.* Syn. by Viereck, 1912.

Limnerium insolvens (!): Dalla Torre, 1901. Catalogus Hymenopterorum, 3: 98. n. comb., lapsus.

Charopsimorpha tibialis apaturae: Viereck, Proc. U. S. Natl. Mus., 42: 635. n. comb.

Charopsimorpha tibialis: Viereck, 1912. Proc. U. S. Natl. Mus., 42: 635. n. comb.

Limneria? insolens: Cresson, 1916. Mem. Amer. Ent. Soc., 1: 36. Lectotype design.

Charopsimorpha tibialis: Townes, 1945. Mem. Amer. Ent. Soc., 11: 680. syn., cat., distr., hosts. Hosts: *Astrocampa clyton.*

Charopsimorpha tibialis: Townes, 1946. Bol. Ent. Venezolana, 5: 38. n. comb.

Charopsimorpha tibialis: Townes & Townes, 1951. U. S. Dept. Agri., Agri. Monogr., 2: 386. Costa Rica, Cuba, Mexico, Southeastern U.S.A. Additional hosts: *Asterocampa celtis, Hemiceras rava, Hippia insularis, Symmerista albifrons.*

Microcharops tibialis: Townes, Townes & Gupta, 1961. Mem. Amer. Ent. Inst., 1: 248. n. comb.

Microcharops tibialis: Costa Lima, 1962. Insetos do Brasil 12. Himenópteros, 2: 53. Brazil? Host: *Alabama argillacea.*

Microcharops tibialis: Townes & Townes, 1966. Mem. Amer. Ent. Inst., 8: 156. syn. (in part), cat. Brazil, Costa Rica, Cuba, Mexico, U.S.A. [*Angitia (Inareolata) brasiliensis* Costa Lima transferred under *peronota*].

Microcharops tibialis: Carlson, 1979. Catalog of Hymenoptera in America North of Mexico, 1: 681. syn., distr., hosts. Additional host: *Symmerista canicosta*

Female: Face and clypeus rugulose, clypeus a little finely so; orbital borders and apical margin of clypeus smoother. Apical margin of clypeus truncate or very slightly concave. Malar space 0.5x the basal width of mandible. Frons granuloso-rugulose. Vertex granulose with ocellar area ruguloso-granulose. Interocellar distance 1.8-2.0x the ocellocular distance. Pronotum striate medially and shallowly punctate and subpolished above. Epomia strong along front border and extending dorsally but not reaching dorsal margin. Mesoscutum granuloso-punctate, punc-

tures close together and anastomosing. Notaular areas and scutellum (Fig. 18) rugose. Mesopleurum (Fig. 28) evenly convex, finely punctate on a polished surface; striations below subtegular ridge and speculum oblique. Sternaulus short and deep anteriorly, groove-like. Mesosternum granuloso-punctate. Metapleurum shallowly rugulose and with scattered fine punctures. Juxtacoxal carina often sharp or represented by striations and area below it often with striations. Propodeum (Fig. 29) rugose to rugoso-reticulate. Basal area shallowly rugose. Areola moderately wide, horse-shoe shaped or rectangular, with strong carinae, open apically or closed by a carina. Median longitudinal carinae converging before meeting the apical transverse carina to form the sides of the median petiolar area. Costulae and lateral portions of apical transverse carina distinct. Pleural area shallowly punctate, subpolished. Propodeal spiracle elongate-oval. Nervulus distad of basal vein by about 0.2-0.25 its length, almost vertical. 2nd abscissa of cubitus about 0.4 the length of intercubitus. Nervellus vertical. Hind coxa subpolished. Hind femur about 4.2x as long as deep. Abdomen subpolished. Postpetiole comparatively flat. First and second tergites a little mat. Gastrocoeli comparatively large, oval, touching base as well as outer margin of tergite 2.

Black. Palpi, mandible, tegula, wing bases, and fore and middle legs largely, yellow. Scape and pedicel yellow to brown ventrally. All coxae black. Fore femur and middle femur, tibia and tarsus with brownish marks. Hind trochanter black, trochantellus brownish, femur blackish-brown (sometimes lighter, especially on the inner side), tibia yellow medially and black basally and in apical 0.3, tarsus largely black with bases of segments 2-5 yellowish-brown. Abdomen generally black. Gastrocoeli yellow. Base of tergite 3 sometimes narrowly to widely yellow, particularly in Non-American populations. Sternites 2-3 yellow. Sternite 4 yellow to black or with a black stripe. Body pubescence white, not dense as in *bimaculata* and some other species.

Male: Essentially similar to the female in sculpture. Scape and pedicel yellow ventrally. Middle trochantellus black. Hind femur color variable from yellowish brown to blackish. Tergite 3 often with a wide yellow basal band.

Length: 7-9 mm.; fore wing 4-6 mm.; ovipositor 1 mm.

Specimens examined: 14 males and 41 females, from ARGENTINA (Punta Lara); BRAZIL (Floresta da Tijuca, Guanabara; Serdo Araripe Ceara; Nova Teutonia; Nova Teutonia, Santa Catarina; Cab. do Veado, D. F.; Sinop, Mato Grosso; Linhares, E. Santo; Teodoro, Sampio; Tucurui, Para; Mangaratiba, Murique, Rio de Janeiro); CANADA (Ontario: Rondeau Prov. Park, Pt. Pelee, Marpeth?); COSTA RICA (Santa Rosa Park, Guanacaste; Sixola Valley, Prov. of Limon); CUBA (Santiago do Vagas, Habana); ECUADOR (San Lorenzo, Esmer; Coca); MEXICO (El Saltito, Durango, 6000 ft.); PERU (Quincemil, 750 m., nr. Marcapata); SURINAM (Paramaribo, Ma Retroite); VENEZUELA (San Estaban, nr. Puerto Cabello); U.S.A. (Arizona: S. Portal, Cochise Co., 4800 ft.; Arkansas: Hope; Connecticut: Sterling; Florida: Gainesville, Pine Hill Estate; Georgia: Atlanta; Illinois: Decatur; Kansas: Lawrence; Kentucky: Golden Pond; New Jersey: Moorestown; Texas: Belfrage; West Virginia: Bolivia). (AEI, DPI, CNC, USNM).

The 5 females from Gainesville, Florida (DPI) have the hind femur black and the interocellar distance is slightly greater than 2.0x the ocellocular distance. They have not been subsequently collected there in spite of the fact that several Malaise traps have been set up in Gainesville and other parts of Florida during the past 5 years.

Collection dates: The earliest collection dates of the specimens examined are June 1927 at Rondeau Prov. Park, Ontario, Canada and Hope, Arkansas, U.S.A., both specimens being in Canadian Insect Collections. In South America this species has been collected mostly in November-December, in Central America in May-June, and in North America in August-November.

Reared specimens are from Canada: Ontario: Marpeth?, 1 male, IX. 1946, ex. *Astrocampa clyton* (CNC); Cuba: Santiago do Vagas, Habana, 1 female, III. 1932, A. Otero, ex. *Hippia insulans* (USNM); Costa Rica: Sixola Valley, Prov. of Limon, 1 female, XII. 1915, ex. *Hemiceras* larva (USNM); USA: Connecticut: Sterling, 1 male, VII. 1974, M. Fergione, ex. *Symmerista canicosta* (USNM).

Hosts (from label records): *Asterocampa clyton, Symmerista albicosta, S. canicosta, Hippia insularis, Hemiceras* sp.

Distribution: This species appears to have a wide distribution in North America, but only a few specimens have been caught. Outside North America, it occurs in the Caribbean, Mexico and northern South America.

10. **Microcharops peronota** (Cameron) (Fig. 19)

Charops peronotus Cameron, 1911. Timehri, 3 (1): 183. F. des. Type: F, British Guinea: [So. Dimerara] (LONDON). Type examined.

"Charops" peronatus (!): Morley, 1915. Ann. & Mag. Nat. Hist., (8) 16: 339. des.

Angitia (Inareolata) brasiliensis Costa Lima, 1935. O Campo, June 1935: 20. M, F. des., fig. Type: F, Brazil: Rio de Janeiro (RIO DE JANEIRO). Host: *Papilio anchisiades capys*. Name preocc. in *Microcharops* by Szépligeti, 1906. **New Syn.** [Townes & Townes, 1966 syn. it under *tibialis*.]

Inareolata brasiliensis: Costa Lima, 1936. Terceiro catálogo dos insectos que vivem nas plantas do Brasil, p. 223. syn. Host: *Papilio anchisiades capys.*

Angitia? (Inareolata) brasiliensis: Costa Lima, 1962. Insetos do Brasil 12. Himenópteros, 2: 55, 56., syn., fig.

Microcharops peronota: Townes & Townes, 1966. Mem. Amer. Ent. Inst., 8: 155. n. comb. British Guinea.

This species approaches *M. tibialis* in having moderate-sized areola and interocellar distance about 1.8x the ocellocular distance. It differs from that species in having the areola more pentagonal in shape and the mesopleurum being rugoso-punctate rather than punctate and somewhat dull. It is generally more blackish; the tegula, trochanters, femora and abdomen are often black.

Female: Face (Fig. 19) medially and clypeus basally rugulose, orbital borders and apical portion of clypeus subpolished and with scattered punctures. Clypeus may be with scattered rugulosities in basal half. Malar space 0.45-0.55x the basal width of mandible. Frons and ocellar area granuloso-rugulose. Vertex granulose. Interocellar distance 1.7-2.0x the ocellocular distance. Pronotum shiny and shallowly striato-rugose. Epomia strong on pronotal collar, ascending a little obliquely

and not quite reaching upper margin of pronotum. Mesoscutum granuloso-punctate, punctures touching each other. Notaular areas rugose. Scutellum rugose. Mesopleurum rugoso-punctate, striate below subtegular ridge. Sternaulus short and moderately deep. Mesosternum granuloso-punctate. Metapleurum shiny and shallowly ruguloso-punctate. Juxtacoxal carina distinct, often wavy and area below it rugose. Propodeum rugoso-reticulate, its pleural and basal areas often with shallow rugosities and subpolished. Areola moderate-sized, about as long as wide, usually pentagonal in outline. Median longitudinal carinae weak to indistinct in the petiolar area. Costulae and lateral sections of apical transverse carina distinct. Propodeal spiracle small oval. Nervulus vertical and distad of basal vein by about 0.2x its length. Second abscissa of cubitus about 0.5 the length of intercubitus. Nervellus vertical or slightly curved. Hind coxa subpolished and finely mat. Hind femur 4.7-5.0x as long as deep. Abdomen subpolished. Postpetiole finely mat. Gastrocoeli oval. Ovipositor short and straight.

Black. Body pubescence white, not dense, longer on scutellum and propodeum. Palpi, mandibles, scape and pedicel ventrally, tegula, wing bases, and fore legs beyond coxae, yellow. Flagellum black. All coxae black. Middle legs yellow with blackish marks on trochanter, base of femur, apex of tibia and tarsal segments except the first largely yellow. Hind leg largely black with trochantellus brown and tibia broadly yellow in the middle. Base of basitarsus yellow. Abdomen black with base of tergite 3, gastrocoeli, membranous portion of sternite 1, and sternites 2 and 3, yellow.

Male: Essentially similar to the female but middle and hind legs less extensively black. Hind femur partly to wholly reddish-brown. In a male from Venezuela and Brazil each, all femora orange colored and trochanters white.

Length: 6-8.5 mm.; fore wing 4-5 mm; ovipositor 1-1.5 mm.

Specimens examined: 6 males and 75 females from ARGENTINA (Horco Molle, nr. Tucuman; San Pedrode Colalao, Tucuman); BRAZIL (Floresta de Tijuca, Guanabara; Ser. do. Araripe, Ceara; Campina Grande, nr. Curitiba; Represa Rio Grande, Guanabara; Nova Teutonia, 300-500 m.; Nova Teutonia, Santa Catarina; Jatai, Goilas; Pedra Azul., M. Ger., 800 m.; Mangaratiba, Muriqui, Rio de Janeiro); COLOMBIA (Cali); COSTA RICA (Santa Rosa Park, Guanabara; Guanacaste, San Jose, San Antonio de Escazu); ECUADOR (Esmer; Coca & Napo Rivers; S. Domingo, Pich Pr.; Napo Prov., Limoncocha); PANAMA (Darien); SURINAM (Para, Paramaribo, Ma Retraite; Zanderij) (AEI, DPI, CNC, MCZ, WAHL).

The type of *peronota* from British Guinea: Dimerara has been examined. In addition, one male and one female of *Angitia (Inareolata) brasiliensis* Costa Lima, almost certainly from the original type-series, and reared from *Papilio anchisiades capys*, are present in AEI collections, on the basis of which it is synonymized with *peronata*.

Host: Papilio anchisiades capys in Brazil.

Distribution: South and Central America.

11. **Microcharops townesi**, n. sp. (Figs. 13 - 17)

This species is somewhat in between *M. tibialis* and *peronota.* It approaches *tibialis* in its punctate and subpolished mesopleurum, but in the shape and size of the areola, it shows resemblance with *peronota*. Its distinguishing characters are the sculpture of the face, mesoscutum, mesopleurum and propodeum, and the coloration of legs.

Female: Face and clypeus rugulose (Fig. 13). Malar space 0.4-0.5x the basal width of mandible; mandibular flange comparatively more prominent. Frons a little coarsely rugulose than face. Vertex granulose. Interocellar distance 2.0x the ocellocular distance. Pronotum striate medially and smoother along upper border. Mesoscutum rugulose, at places rugoso-punctate. Scutellum rugoso-punctate. Mesopleurum (Fig. 16) finely punctate with interspaces smooth and shiny. Sometimes punctures closer together. Mesopleurum also with oblique striations along speculum, more so in the upper 0.5. Mesosternum granuloso-punctate. Metapleurum rugose along juxtacoxal area, otherwise rugulose at places. Propodeum (Fig. 17) largely rugoso-reticulate, basolateral areas without reticulations, rugulose. Areola of moderate size, about as long as wide, hexagonal, and open apically. Median longitudinal carinae convergent and mingling with reticulations in the petiolar area. Other carinae indistinct and merging with reticulations. Wing venation as in *tibialis*, but second abscissa of cubitus about 0.4x the intercubitus (Fig. 15). Nervellus slightly reclivous. Hind coxa finely granulose, subpolished. Hind femur about 4.5x as long as deep. Abdomen subpolished. Petiole and postpetiole slender. Postpetiole and tergite 2 finely mat. Ovipositor short and straight.

Black. Mandible, pedicel ventrally, tegula, and fore and middle legs largely, yellow, their femora and tibiae with light reddish-brown infuscations. All coxae black. Hind trochanter largely black; trochantellus yellow; femur red with black marks basally and apically; tibia in basal 0.2 and in apical 0.4 black, yellow in the middle; tarsus blackish with bases of segments faintly yellow. Tergite 2 with a narrow subapical stripe. Tergite 3 in basal 0.3-0.4 yellowish-brown. Body pubescence white, not dense or long.

Length: 8-9 mm; fore wing 5-5.5 mm.; ovipositor 1.0-1.5 mm.

Holotype: Female, U.S.A.: Michigan: Ann Arbor, Malaise trap 1, 28. VII. 1959, H. & M. Townes (GAINESVILLE). *Paratypes:* 18 females, same locality as the holotype, collected from June to October during 1959-63. Michigan: East Lansing, 1 female, 9. VII. 1937. Michigan: Livingston Co.: E. S. George Reserve, 6. VIII. 1960 (GAINESVILLE).

Distribution: U.S.A.: Michigan.

12. **Microcharops rufoantennata**, n. sp. (Figs. 24, 25, 26)

This species is characterized by having the whole antenna brown, interocellar distance 2.0x the ocellocular distance, malar space 0.5x the basal width of man-

dible, mesopleurum largely striato-punctate with the lower 0.4 ruguloso-punctate, and the areola crescent-shaped, about 2.0x as wide as long (Fig. 26).

Female: Face, frons and clypeus (Fig. 24) coarsely rugulose. Malar space 0.5x the basal width of mandible. Vertex granulose. Interocellar distance 2.0x the ocellocular distance. Pronotum striate medially and shallowly punctate and shiny above. Epomia not reaching upper margin of pronotum. Mesoscutum closely granuloso-punctate, its notaular areas and central area and scutellum rugose. Mesopleurum subpolished, largely striate, its lower part granuloso-punctate (Fig. 25), punctures not very dense. Mesosternum finely granuloso-punctate. Metapleurum subpolished, shallowly rugulose, area below juxtacoxal carina shallowly rugose. Juxtacoxal carina moderately strong and irregular. Propodeum (Fig.26) largely semicircularly striate to rugoso-striate, its basal and lateral areas rugulose. Areola about 2.0 as wide as long, crescent-shaped. Propodeal carinae strong. Median longitudinal carinae diverging posteriorly enclosing a wider and somewhat excavated petiolar area. Nervulus slightly distad of basal vein and inclivous. Second abscissa of cubitus about 0.7-0.8 the length of intercubitus. Nervellus almost vertical with its lower end weakly bent. Hind coxa finely granuloso-mat. Hind femur 4.6-4.8x as long as deep. Abdomen polished, with middle of postpetiole and base of tergite 2 mat. Postpetiole wider. Gastrocoeli elongately oval, medium sized. Ovipositor short and straight.

Black. Antenna, mandible, fore leg beyond coxa, middle leg beyond trochanters, tegula, and gastrocoeli, brown. Coxae black. Middle and hind trochanters blackish. Hind femur and tarsus blackish-brown. Hind tibia brownish with blackish marks at base and in apical 0.2. Tergite 2 dark brown apically. Tergite 3 sometimes brownish-black rather than black. Body pubescence white and not very dense or long.

Male: Essentially similar to the female, but mesopleurum and metapleurum more shiny and less strongly striate or punctate. Hind femur and tergites 2-3 more brownish in color.

Length: 5-6 mm.; fore wing 3.5-4.0 mm.; ovipositor about 1 mm.

Holotype: Female, VENEZUELA: Caracas, 11. VII. 1938, C. H. Hallov, ex larva of *Harrisina* sp. on grape (GAINESVILLE). *Paratypes:* 3 males and 6 females, same data as the holotype (GAINESVILLE). MEXICO: Oax.: Metate, 85.5 km. SW of Tuxtapec, 900 m., 1 female, 19. X. 1962, H. & M. Townes (GAINESVILLE).

One female from Venezuela: Tucuco: Zulia, 28.IV.1981, H. K. Townes, has the interocellar distance 2.5x the ocellocular distance; otherwise it agrees with the present species.

Host: Harrisina sp. (in Venezuela).

Distribution: Venezuela and Mexico.

13. **Microcharops flavicoxa**, n. sp. (Figs. 30, 31, 32)

Epomia strong, flange-like, almost vertical. Postpectal carina deeply cleft medially. All coxae yellow. Thorax rather short and compact. Propodeal carinae as in figure 32. Petiole yellow. Sternites 1-2 yellow, mat; others yellowish-brown, smooth.

Male and *female:* Flagellum comparatively more hairy and tapering, appears whip-like. Face rugoso-reticulate, rugosities rather deep; inner orbital margins smoother and with scattered punctures. Clypeus a little raised medially, rugoso-striate basally and smooth apically, its apical margin broadly arched. Malar space 0.5x the basal width of mandible. Frons finely rugose than face, granuloso-punctate near eye orbits. Vertex rugose in ocellar area and granulose along eye orbits. Interocellar distance almost twice (1.8-1.9x) the ocellocular distance. Pronotum polished, with a few strong transverse carinae in the median trough and with a few punctures along its hind corner. Epomia strong, straight, flange-like. Mesoscutum rugose, its basomedian area and scutellum rugulose. Mesopleurum polished, with distinct well separated punctures. Mesosternum with contiguous well formed punctures on a mat surface. Prepectal carina strongly arched, meeting hind margin of pronotum below its middle. Prepectus depressed and smoother. Postpectal carina strong, flange-like and deeply cleft medially (Fig. 31). Metapleurum shallowly punctate and polished except for the rugose juxtacoxal area. Propodeum (Fig. 32) largely rugoso-reticulate dorsally and with a deep trough medially, its basal area and pleural area close to the pleural carina smoother. Propodeal carinae strong including the pleural carina. Costula close to the base of areola. Areola widely diverging posteriorly. Nervulus slighlty distad of basal vein and slightly inclivous. Nervellus slightly reclivous to almost vertical. 2nd abscissa of cubitus 0.5x the intercubitus. Abdomen subpolished. Tergites faintly mat and with fine setiferous punctures. Ovipositor about as long as the apical depth of abdomen, stout.

Black and yellow. Body pubescence golden brown. Head and thorax black. Scape, pedicel, palpi, mandibles, tegula and fore and middle legs wholly yellow. Hind leg yellowish- brown with tibia basally and apically, and tarsal segments apically, black. Abdomen yellowish brown with black marks on postpetiole and at middle and apex of tergite 2. Ovipositor sheaths black. Often hind coxa with black marks at base. In males hind coxae largely black and tarsi wholly black. In one female apical half of abdomen blackish.

Length: 7-10 mm.; fore wing 5-7 mm.; ovipositor 1-1.5 mm.

Holotype: Female, BRAZIL: Vila Vera, X. 1973, M. Alvarenga (GAINESVILLE). *Allotype:* Male, Brazil: Sinop, M. Grosso, X. 1974, M. Alvarenga (GAINESVILLE). *Paratypes:* 6 males and 28 females from Brazil: Sinop, M. Grosso, X. 1975, X. 1975, and II. 1976; Caceres, M. Grosso, XI. 1974; Tucuruf, Para, I. 1979; Jatai, Colas, XI. 1972; all M. Alvarenga Coll. PANAMA: Canal Zone: Margarita, III. 1980, S. Breeland. PARAGUAY: Pirapo, 1 male, XII. 71; Carumbe, I male, II. 1966. VENEZUELA: Tucuco, Zulia, 23. IV. 1981, M. Townes (All GAINESVILLE). PERU: Pucalipa, Dept. Loreto, 1 male, 19. VI. 1950, J. M. Schunke; Huanuco, Yanayacu, Rio Pachitea, 1 female, 23. VIII. 1961, J. M. Schunke (LONDON). Panama: Barro Colo Is., 1 female, V. 1939 (WASHINGTON). TRINIDAD: Curepe, 1 female, VIII. 1978, Malaise trap (OTTAWA). BOLIVIA: Santa Cruz, General Saavedra, 2 males, VI. 1974, C. Porter & L. Stange (DPI).

Distribution: South and Central America.

14. **Microcharops nigricoxa,** n. sp.

Male and female: Similar to *M. flavicoxa* in the nature of the epomia, postpectal carina, propodeum, etc., but coxae black. Fore coxa with yellow marks. Hind femur blackish basally. Tergites largely black except basally. Sternites 1-2 yellow and granulose, rest black and mat. (In one male all sternites black). Mesopleural punctures crowded and with some rugosities in between, tending to be rugosopunctate at many places. Nervulus vertical. Postpetiole with shallow rugosities.

Length: 9-10 mm.; fore wing 7-8 mm.; ovipositor 1.0-1.5 mm.

Holotype: Female, BRAZIL: Nova Teutonia: Santa Catarina, XII. 1970, F. Plaumann (GAINESVILLE). *Allotype:* Male, Same locality as the holotype, 7. II. 1954 (GAINESVILLE). *Paratypes:* 2 males and 4 females, Brazil, same locality and collector as the holotype but collected between October to February 1937 to 1968 (GAINESVILLE) and one male and one female (LONDON). One specimen from London has the abdomen broken; the abdomen pasted on the label is not of *Microcharops*. Brazil: Nova Teutonia, 300-500 m., 6 males, 4 males, collected in January, July, August, November and December 1968, F. Plaumann (OTTAWA). ARGENTINA: Miss. Dos de Mayo, 1 female, Nov. 1964 (OTTAWA).

Distribution: Argentina, Brazil.

15. **Microcharops longiterebra**, n. sp.

Female: Similar to *M. nigricoxa* in sculpture and general coloration, but body pubescence whitish, mesopleurum tending to be aciculo-punctate, and ovipositor slender, upcurved and about 2.0x as long as the apical depth of abdomen, conspicuously projecting upwards beyond the tip of abdomen. Hind leg tending to be more blackish, with yellow band on hind tibia not clearly defined and tending to be brownish. The yellow color on the body generally replaced by brown. Femora reddish-brown with fuscous marks. Palpi, scape, and pedicel brownish. Tegula black. Petiole black dorsally.

Male: Unknown.

Length: 7-8 mm.; fore wing 6 mm.; ovipositor 3 mm.

Holotype: Female, BRAZIL: Nova Teutonia, 300-500 m. XI. 1968, F. Plaumann (OTTAWA). *Paratypes*: 5 females, same data as the holotype, collected in January, November and December (OTTAWA).

16. **Microcharops fulvohirta** (Cameron) (Figs. 21, 22, 23)

Anomalon fulvo-hirtum Cameron, 1887. Proc. Manchester Lit. Phil. Soc., 26: 132. [M]. des. Type: M, Brazil: Amazons (LONDON). Type examined.

Charops pilosus Szépligeti, 1906. Ann. Mus. Natl. Hungarici, 4: 127. F. des. Type: F, Peru: Pachitea (BUDAPEST). Type examined. **New Syn.**

"near *Charops" fulvohirtum*: Morley, 1913. Revision of the Ichneumonidae in the British Museum, 2: 84. syn. notes.

Microcharops fulvohirta: Townes & Townes, 1966. Mem. Amer. Ent. Inst., 8: 155. n. comb. Brazil.

Microcharops pilosa: Townes & Townes, 1966. Mem. Amer. Ent. Inst., 8: 155. n. comb. Peru.

The types of the two taxa mentioned above have been examined. Except for the sexual differences in sculpture, which is common in the genus, there are no other appreciable differences. The two are therefore synonymized. The head of the type specimen of *fulvohirtum* is missing. The following redescription is mainly based on the types and two specimens available with me.

Male and *female:* Face rugose with inner orbital borders smoother. Clypeus rugulose. Malar space 0.5x the basal width of mandible. Frons rugose. Vertex finely granulose with ocellar area rugulose. Interocellar distance 1.8-2.0x the ocellocular distance. Thoracic sculpture superimposed on a granular surface. Pronotum rugoso-reticulate medially. Mesoscutum rugose, laterally somewhat rugoso-punctate and reticulate along notaular areas. Scutellum rugose. Mesopleurum rugose, tending to be reticulate at places (type). In another female, slightly smaller in size, mesopleurum tending to be rugoso-punctate (this specimen figured, fig. 21). Speculum shiny and with a series of almost parallel striations in front of it Mesosternum granuloso-punctate, punctures contiguous. Lower half of metapleurum and propodeum largely reticulate in addition to rugosities. Median dorsal carinae stronger basally and bounding a trough-like petiolar area. Areola narrowing apically and open. Costulae strong. Basal area bounded by carinae. Lateral longitudinal carina strong in basal half and demarcating the dorsal and pleural areas of propodeum. Pleural carina strong. Hind coxa dull, rugoso-punctate. Hind femur club-shaped (Figs. 22, 23), its base narrow and cylindrical in basal 0.3, then widened; maximum width about 2.0x the width at base; length 4.5x the maximum width. Coxae granulose. Hind coxa granuloso-punctate. Nervulus interstitial or a little distad of basal vein, a little inclivous. 2nd abscissa of cubitus 0.6x the intercubitus. Nervellus slightly reclining. Tergite 1 polished, postpetiole shiny and mat. Tergite 2 subpolished and finely granulose. Rest of the tergites mat and subpolished. Ovipositor about as long as the apical depth of abdomen and upcurved. Sculpture of propodeum and side of thorax coarser in the male.

Black. Body pubescence golden brown. Abdomen beyond half of tergite 2 yellowish-brown. Coxae black. Fore coxa partly yellow or brownish. Palpi, mandible, scape, pedicel, tegula, fore leg, middle leg except coxa, and hind trochanters, femur and tibia medially, yellow. Fore coxa brownish-yellow. Fore and middle femora often with reddish tinge. Hind femur with reddish tinge in apical half. Hind tibia narrowly at base and in apical 0.4 and hind tarsus black. Tergite 2 in basal half and along its apical margin black. Flagellum black. Wing veins blackish. Wing bases yellow. Propodeum more hairy in males.

Length: 9-11 mm.; fore wing 6-7 mm; ovipositor 2-2.5 mm.

Specimens examined: BRAZIL: Amazons, 1 male (type of *fulvohirtum*), BM type Hym 3.b.1412, Cameron Coll. 98 (LONDON). PERU: Pachitea, 1 female (type of *pilosus*) (BUDAPEST). Brazil: Sao Paulo: Ribeirao Preto, 1 female, 7. I. 1968, G. E. Bohart (GAINESVILLE). Peru: San Antonio, Loreto, 1 female, VIII. 1965, J. C. Hitchcock, Malaise trap (WASHINGTON).

Distribution: Brazil, Peru.

17. **Microcharops similis** (Szépligeti) (Figs. 20, 44)

Charops similis Szépligeti, 1906. Ann. Mus. Nat. Hungarici, 4: 128. F. des. Type: F, Bolivia: Mapiri (BUDAPEST).
Microcharops similis: Townes & Townes, 1966. Mem. Amer. Ent. Inst., 8: 155. n. comb. Bolivia.

Male and *female:* Face rugose (sculpture finer than in the preceding species), smooth along inner orbits. Clypeus rugulose. Clypeal foveae rather deeply impressed. Malar space about 0.5x the basal width of mandible. Frons and ocellar area rugulose. Vertex finely granulose. Interocellar distance 1.8-2.0x the ocellocular distance. Mesoscutum rugoso-punctate, reticulate along notaular areas. Scutellum rugose. Mesopleurum (Fig. 20) shiny and punctate in lower half, punctures often crowded at places, tending to be rugoso-puncatate; upper half of mesopleurum rugose to somewhat reticulate. Speculum polished. Area in front of speculum with parallel striations, which are weak just opposite speculum (cf. *fulvohirta*). Mesosternum punctate, close but with shiny interspaces. Metapleurum punctate above and rugoso-reticulate in lower half, punctures tending to be shallow at places. Propodeum rugose, hairy laterally, its basal and pleural areas rugulose. Areola fully formed, but open apically. Costulae distinct but wavy. Median longitudinal carinae indistinct in the petiolar area. Lateral longitudinal carina weak and not forming a basolateral crest. Pleural carina not as strong as in *fulvohirta*. Mesopleurum, metapleurum, and basal and pleural areas of propodeum less shiny and a little strongly sculptured in some specimens. Propodeum in male strongly reticulate apicad of basal transverse carina. Hind coxa shiny and shallowly punctate. Hind femur (Fig. 44) with a short neck and slightly club-shaped, less so than in the preceding species. Tergite 1 slender, smooth. Tergite 2 finely granulose and shiny. Rest of abdomen mat and subpolished. Ovipositor upcurved, a little longer than the apical depth of abdomen.

Color similar to that of *fulvohirta* except that fore and middle legs bright yellow and hind femur without, or with only faint reddish tinge. Base of tergite 3 with a black mark in female and a band in male.

Length: 7-9 mm.; fore wing 5-6 mm.; ovipositor 1.5-2.0 mm.

Specimens examined: PERU: Quincemil, 750 m., near Marcapata, 15 males and 5 females, 10-15. XI. 1952, L. Pena (GAINESVILLE). BOLIVIA: Mapri, 1 female (type) (BUDAPEST).

Distribution: Bolivia, Peru.

18. **Microcharops hipposiderus,** n. sp. (Figs. 35, 36, 37)

Propodeal areola large and horse-shoe shaped, hexagonal-like but with sides rounded, as long as wide, areola depressed and surface granuloso-rugose. Side of thorax shiny and punctate. Body pubescence white to dirty-white. Wings clear hyaline. Nervulus usually interstitial and almost vertical. Nervellus reclivous. Ovipositor slightly curved upwards.

Female: Face rugose. Orbital borders and clypeus subpolished and with scattered punctures. Malar space 0.35-0.4 the basal width of mandible. Frons and ocellar area also rugose, but ocellar area a little finer. Vertex granulose. Interocellar distance 1.8 the ocellocular distance. Pronotum trans-striate medially and punctate along its upper margin. Mesoscutum rugose. Scutellum finely rugose. Mesopleurum punctate and shiny, interspaces usually separated by 1.0-1.5 their diameters. In some specimens punctures closer. Area in front of polished speculum trans-striate. Striations at lower end of speculum oblique, not parallel to the striations in front of speculum. Mesosternum granuloso-punctate, dull as compared to mesopleurum. Metapleurum shallowly punctate in the upper half and rugose in the lower half. Propodeum rugose, its pleural area subpolished and irregularly punctate, its basolateral areas tending to be rugulose and shiny. Propodeal carinae distinct up to its basal half, then becoming weak to indistinct. Basal area triangular. Areola horse-shoe shaped, hexagonal with sides usually rounded, narrowing apically, but not closed, the median longitudinal carinae becoming indistinct in the petiolar area. Areola about as wide as long, larger as compared to that is usually seen in the genus, its inner surface granuloso-rugose. Costula emitted from its middle and distad from the base of propodeum by about 0.3 the length of propodeum. Lateral longitudinal carina distinct in basal 0.3 forming a weak lateral edge. Propodeal spiracle roundish-oval. Legs slender. Hind femur about 4.7 as long as deep. Hind coxa shiny, indistinctly punctate. Nervulus usually almost interstitial or slightly postfurcal, slightly inclivous. Second abscissa of cubitus less than half the intercubitus (Fig. 36) so that intercubitus and second recurrent vein not far apart from each other. Nervulus slightly reclivous. Abdomen polished with postpetiole and second tergite finely mat. Ovipositor short and stout, weakly arched upwards.

Black and yellow. Head, flagellum, thorax, coxae and first and second tergites largely, black. Abdomen and legs otherwise yellow. Palpi, mandible, scape, pedicel, tegula and wing bases yellow. Hind femur with brownish tinge. Hind tibia with basal and apical black bands. Hind tarsus blackish. Postpetiole brown. Tergite 2 with a subapical yellow band. Tergite 3 black at base in the middle, and with a white mark apically (sometimes faint or absent). Wings clear hyaline. Body pubescence yellowish-brown.

Male: Similar to the female, but thoracic sculpture a little more coarse than in the female. Mesopleurum tending to be rugoso-punctate and subpolished. Carinae around areola stronger. White mark at apex of tergite 3 distinct. Sometimes tip of abdomen blackish.

Length: 7-9 mm.; fore wing 5-6 mm.; ovipositor 1.5 mm.

Holotype: Female, VENEZUELA: Tucuco, Zulia, 26. IV. 1981, H. K. Townes (GAINESVILLE). *Paratypes:* 17 males and 33 females from Venezuela: Same data as the holotype, 5 females. TRINIDAD: Morne Bleu, 2700 ft., 2 males, 4 females, 7-28. VIII. 1969, H. & A. Howden. BRAZIL: Sinop, M. Grosso, 3 females, X. 1974, 1 female, x. 1975, M. Alvarenga. COSTA RICA: Monteverde, 3 females, 30. XII. 1961, C. Palmer. PARAGUAY: Carumbe, 3 females, 1. II. 1966, R. Golbach (All GAINESVILLE). Brazil: Represa, Rio Grande, 1 female, XII. 1967; Nova Teutonia, 1 female, II. 1966. MEXICO: Chiapas, Mustee, 440 m., near Huixitla, 1 male, 1 female,

21. IX. 1970, Welling (OTTAWA). COSTA RICA: San Jose: San Antonio de Escazu, 1 female, 4 males, March-April 1984, S. A. Cameron, Malaise trap (WAHL). Costa Rica: Heredia nr. Puerto Viejo (La Salva Biol. Res.), 5. III. 1984, S. A. Cameron, Malaise trap (WAHL). COLOMBIA: Dept. Vale, Anchicaya, 1 male, 20. VII. 1977, Malaise Trap (DPI).

A series of males and females from Argentina: Horco Molle, Tucuman apparently belong to this species. However, the propodeal areola is not depressed, and the surrounding carinae are often weak or incomplete. These specimens are not designated paratypes.

Distribution: Central and South America.

19. **Microcharops fulvoalaris**, n. sp.

Differs from *M. hipposiderus* in: Interocellar distance 1.7-1.8x the ocellocular distance. Propodeal areola small, hexagonal, narrow, with its sides weak beyond costulae. Frons and ocellar area rugulose on a granular surface. Propodeal spiracle elongate-oval. Body pubescence golden-brown. Wings tinged with brown. Nervulus postfurcal and slightly inclivous. Nervellus more strongly reclivous.

Female: Face rugose, a little finely so than in *M. hipposiderus*. Clypeus smoother apically. Frons and ocellar area rugulose. Vertex granulose. Interocellar distance 1.7-1.8x the ocellocular distance. Malar space 0.5x the basal width of mandible. Pronotum striate medially, its upper margin and hind corner granulose. Mesoscutum rugulose on a granular surface, rugose along notaular areas. Scutellum rugose. Mesopleurum with irregular punctures tending to be rugoso-punctate, its surface subpolished. Area in front of speculum with parallel striations. Sculpture of mesopleurum variable with the size of specimens, tending to be rugose in larger specimens and more punctate in smaller specimens. Mesosternum punctato-granulose. Sternaulus deeply impressed in about half the length of mesopleurum, more so than in other species. Metapleurum subpolished, indistinctly punctate dorsally and rugose in juxtacoxal area. Juxtacoxal carina sharper than in other species. Propodeum rugose with basal and pleural areas subpolished and with indistinct rugulosities. Petiolar area depressed. Areola smaller, incomplete beyond costula. Shape of areola variable, either roundly curved basally or appearing hexagonal. Basal transverse carina strong forming the basolateral sides of areola and costulae. Apical transverse carina partly visible laterally. Pleural carina strong. Nervulus usually slightly distad of basal vein (variable) and inclivous. Second abscissa of cubitus 0.5-0.6x the intercubitus. Nervellus reclivous. Hind femur slender, about 5.8-5.9x as long as deep. Hind coxa subpolished and with minute setiferous punctures on a mat surface. Abdomen mat and subpolished. Petiole polished. Ovipositor slender, short, very slightly curved.

Black and yellow. Body pubescence golden brown. Wings tinged with brown. Palpi, mandible, scape, pedicel, tegula, wing bases, and fore and middle legs except the coxae, yellow. All coxae black. Hind leg brown with tibia with fuscous marks at base and apex. Tergite 1 black apex and side of postpetiole brown. Tergite 2 black in the basal half and along the apical margin, medially and laterally brown. Tergite

3 with a triangular basal black mark. Rest of the abdomen dark yellowish-brown. Tip of abdomen sometimes blackish-brown.

Male: Essentially similar to the female. Sculpture of mesopleurum and propodeum as well as propodeal areola variable as in the female. Tip of abdomen sometimes darker.

Length: 8-11 mm.; fore wing 5-7 mm.; ovipositor 1.5 mm.

Holotype: Female, BRAZIL: Represa Rio Grande, Guanabara, June 1967, M. Alvarenga (GAINESVILLE). *Paratypes*: 4 males and 44 females, from Brazil: Represa Rio Grande, Guanabara; Caruaru; Serra do Caraca, S. Barbara; Encruzilhada, Bahia; Pedra Azul, M.G.; Floresta da Tijuca, Guanabara; S. Bocaina, S.J.Barreiro; Teodoro Sampaio; Quatro Barros nr. Curitiba; Campina Grande nr. Curitiba; Teresopolis; and Nova Teutonia. Some specimens from Nova Teutonia slightly variable and not designated paratypes.

Distribution: Brazil.

20. **Microcharops flavipetiolata**, n. sp.

Interocellar distance 1.7-1.8x the ocellocular distance. Areola medium-sized, a little longer than wide, open apically. Nervulus postfurcal and more strongly inclivous than in *fulvoalaris*. Second abscissa of cubitus 0.4x the first intercubitus. Nervellus reclivous. Petiole yellow, slender. Ovipositor shorter, not surpassing the tip of abdomen and straight.

Male and *female:* Face and clypeus rugose, with clypeal margins and inner orbits smoother. Frons granuloso-rugose. Ocellar area rugulose. Vertex granulose. Interocellar distance 1.7-1.8x the ocellocular distance. Malar space 0.4x the basal width of mandible. Pronotum subpolished and with strong striations. Epomia strong and almost vertical in the upper middle part of pronotum (in other species it is curved and along the front margin). Mesoscutum granuloso-punctate, finely reticulate along notaular areas. Scutellum rugose. Mesopleurum rugoso-punctate and shiny, with parallel and semicircular carinae in front of smooth speculum. Mesosternum granuloso-punctate. Metapleurum shiny, with weak irregular sculpture in the upper part and somewhat rugose in the juxtacoxal area. Juxtacoxal carina irregular but complete. Propodeum rugose, shallowly so in the pleural area. Carinae around areola including the costulae strong. Areola of moderate size, slightly narrowing and open apically. Carinae bordering petiolar area weak and irregular. Lateral longitudinal carina distinct only up to costula. Propodeal spiracles small but of elongate type. Hind femur 5.2-5.3x as long as deep, moderately slender. Nervulus postfurcal and more strongly inclined than in other species. Second abscissa of cubitus 0.4x the first intercubitus. Nervellus reclivous. Abdominal tergites subpolished and shiny. Postpetiole and tergite 2 finely mat. Abdominal sternites appear finely granulose, more so than the tergites. Ovipositor short, hardly surpassing the tip of abdomen.

Black with legs and abdomen yellow. Body pubescence light yellowish-brown. Palpi, mandible, scape, pedicel, tegula, wing bases, and fore and middle legs except coxae, yellow. All coxae black with fore coxa often partly yellow. Hind trochanters

and femur yellowish-brown. Hind tibia black basally and apically and largely yellow in between. Hind tarsus blackish. Abdomen yellowish-brown with petiole yellow and tergite 2 with an apical black line. Basomedial areas of tergites and sternites 4-6 often black. In males abdominal tergites and sternites largely black, particularly in apical half of abdomen.

Length: 6-8 mm.; fore wing 4.5-6.0 mm; ovipositor 1 mm.

Holotype: Female, BRAZIL: Nova Teutonia: Santa Catarina, 19.ii.1954, Fritz Plaumann (GAINESVILLE). *Paratypes:* 5 males and 6 females, same data as the holotype but collected during January-February and November-December, 1968-70. SURINAM: Kwatta, 1 female, 3-6.iii.1964, D. C. Geijskes (All GAINESVILLE).

One female from Peru: Avispas, Marcapata apparently belongs to this species, but has certain facies of *M. lissopleurum*. It is not designated as a paratype.

Distribution: Brazil, Surinam, and possibly Peru.

21. **Microcharops rufigaster,** n. sp. (Figs. 38, 39, 43)

Head and thorax rugose. Hind coxa granuloso-mat. Petiole and basal abdominal tergites red. Nervulus inclivous. Nervellus strongly reclivous Scape, pedicel and tegula black. All coxae black. Ovipositor short and straight, not longer than apical depth of abdomen.

Male and *female:* Face rugose. Clypeus and frons a little less rugose. Malar space 0.75-0.8 the basal width of mandible. Interocellar distance 1.5-1.6x the ocellocular distance. Pronotum granuloso-rugose. Mesoscutum largely granuloso-punctate with notaular areas rugose. Scutellum rugose. Mesopleurum (Fig. 38) coarsely rugose, at places tending to be reticulate. Mesosternum granuloso-punctate. Metapleurum a little finely rugose than mesopleurum, juxtacoxal carina incomplete. Propodeum (Fig. 39) rugoso-reticulate. Propodeal spiracle elongate-oval. Areola moderate-sized, pentagonal, its carinae strong, but open apically and lateral carinae indistinct beyond areola. costulae distinct but becoming weaker towards the lateral longitudinal carina. Lateral longitudinal carina distinct only basolaterally. Other carinae indistinct. Hind femur slender, about 5.7-5.8x as long as deep. Hind coxa granuloso-mat. Nervulus inclivous and distant from basal vein by about 0.3 its length (Fig. 43). Nervellus strongly reclivous. Petiole long and slender. Postpetiole finely granulose. Basal abdominal tergites mat and sub-polished. Ovipositor short, straight, not longer than apical depth of abdomen.

Black with legs and basal abdominal segments reddish-brown. Body pubescence white. Palpi and mandible basally black and yellowish-brown apically. Scape, pedicel and tegula black. Wing bases yellow. All coxae and trochanters black. Trochantelli reddish-brown. Legs reddish-brown with fore and middle tibiae and tarsi lighter, tending to be yellowish-brown. Tergites 1-4 reddish-brown. Tergite 5 partly reddish and partly black. Rest of the tergites black. Wings tinged with yellowish-brown.

Length: 9-10 mm.; fore wing 6-7 mm.; ovipositor 1.5 mm.

Holotype: Female, ARGENTINA: Tacanas, Tucuman, 7-17.xii.1968, L. Stange (GAINESVILLE). *Paratypes:* 5 males and 13 females, Argentina: Tucuman Province:

Horco Molle, Tafi de Valle, San Javier, San Pedrode Colalao, collected on various dates during December to February (GAINESVILLE).

Distribution: Argentina.

22. **Microcharops lissopleurum**, n. sp.

Female: Similar to *M. fulvoalaris* in general coloration and sculpture, but differs as follows: Face coarsely rugose to somewhat reticulate. Malar space 0.4x the basal width of mandible. Interocellar distance 1.5x the ocellocular distance. Mesopleurum polished and shiny, with scattered minute setiferous punctures. Metapleurum also largely polished and with indistinct punctures, except in the juxtacoxal area. Areola small, squarish or hexagonal, with its carinae strong, but open apically. Wing venation similar to that of *hipposiderus*; nervulus only slightly reclivous. Nervellus almost vertical. Ovipositor slightly upcurved.

Black and yellow. Body pubescence golden brown. Palpi, mandible, scape, pedicel, tegula, wing bases, and fore and middle legs except coxae, yellow. Coxae black. Fore coxa partly brown. Hind femur brownish-yellow. Hind tibia banded with black basally and apically. Hind tarsus blackish. Abdomen light yellowish-brown with tergite 1 wholly, tergite 2 largely in basal 0.75 and along apical margin, black. Gastrocoeli yellow. Wings only lightly tinged with yellow.

Length: 9-10 mm.; fore wing 6-7 mm.; ovipositor 1.5 mm.

Holotype: Female, PERU: Avispas near Marcapata, 20-30. X. 1962, Luis Pena (GAINESVILLE). *Paratypes:* 6 females. COSTA RICA: Sirena, Osa Pen., 4 females, VII. 1977, D. H. Janzen. ECUADOR: Coca, 1 female, V. 1965, L. Pena. SURINAM: 45 km. S. Paramaribo, 1 female, 19. X. 1963, D. O. Geijskes (GAINESVILLE).

Distribution: Central America and Northern South America.

23. **Microcharops alvarengai**, n. sp. (Figs. 40-42)

Characterized by having yellow fore coxa, brownish-black middle coxa, black hind coxa, uniformly and minutely punctate and shiny mesopleurum, narrow areola, thicker hind femur, apical half of first tergite reddish, and abdomen yellowish-brown except for a thin black line at the apex of tergite 2.

Male and *female:* Face finely rugose. Clypeus and orbital margins smoother. Malar space 0.35-0.4x the basal width of mandible. Frons rugoso-striate. Ocellar area rugulose. Interocellar distance 1.6x the ocellocular distance. Vertex granulose. Pronotum striate medially, somewhat smooth and punctate apically and along its hind corner. Mesoscutum rugose, coarser along notaular areas. Scutellum rugose. Mesopleurum (Fig. 41) shiny, with minute, well separated and uniform punctures, separated by about 1.5-2.0x their diameters. Metapleurum indistinctly punctate and subpolished, rugulose in juxtacoxal area. Propodeum rugose. Areola narrow, with its lateral carinae almost parallel-sided and extending some distance in the petiolar area. Costulae distinct. Propodeal spiracle small, oval. Hind coxa shiny. Hind femur thicker, about 4.0x as long as its maximum width. Nervulus slightly distad of basal vein and almost vertical. Second abscissa of cubitus small, about 0.4 the

length of intercubitus, intercubitus and second recurrent vein closer to each other (Fig. 40). Nervellus slightly curved and almost vertical. Postpetiole flatter dorsally, very finely granulose and subpolished. Abdomen mat. Ovipositor short, not longer than the apical depth of abdomen and straight (Fig. 42).

Black with legs and abdomen yellow to yellowish brown. Body pubescence white. Wings clear hyaline with apices slightly tinged. Palpi, mandible, scape, pedicel, tegula, wing bases, fore leg including coxa, and middle leg excluding coxa, yellow. Middle coxae yellowish-brown with black marks at base. Hind coxa black. Hind femur yellowish-brown. Hind tibia blackish dorsally and yellowish ventrally, not distinctly banded except that black mark with an irregular interruption submedially and color fading medially. Hind tarsus blackish. Abdomen yellowish-brown with apical half of tergite 1 (postpetiole) reddish-brown and tergite 2 with an apical black line. Apex of postpetiole often with a thin blackish line. Scape and pedicel dorsally with a blackish line.

Length: 6-8 mm.; fore wing 4-4.5 mm.; ovipositor 1.0 mm.

Holotype: Female, BRAZIL: Vilhera, Rond., XI. 1973, M. Alvarenga (GAINESVILLE). Paratypes: 3 females and 1 male. Brazil: Same data as the holotype, 1 male and 1 female; Sinop, M. Grosso, 2 males, X. 1974, M. Alvarenga (GAINESVILLE).

ACKNOWLEDGMENTS. I am thankful to Dr. Henry Townes for his constant help and advice during the course of this study. I am also thankful to the curators of the various museums who readily loaned the types and other specimens for the present study. Thanks are also due to the entomologists at the Division of Plant Industry, Gainesville, where I was located when this study began.

REFERENCES

Kasparyan, D. R. & Dbar, R. S. 1985. On the taxonomy of ichneumonids of the subfamily Campopleginae (Hymenoptera, Ichneumonidae) of the Far East of the USSR. Proc. Zool. Inst. USSR, 132: 40-53.

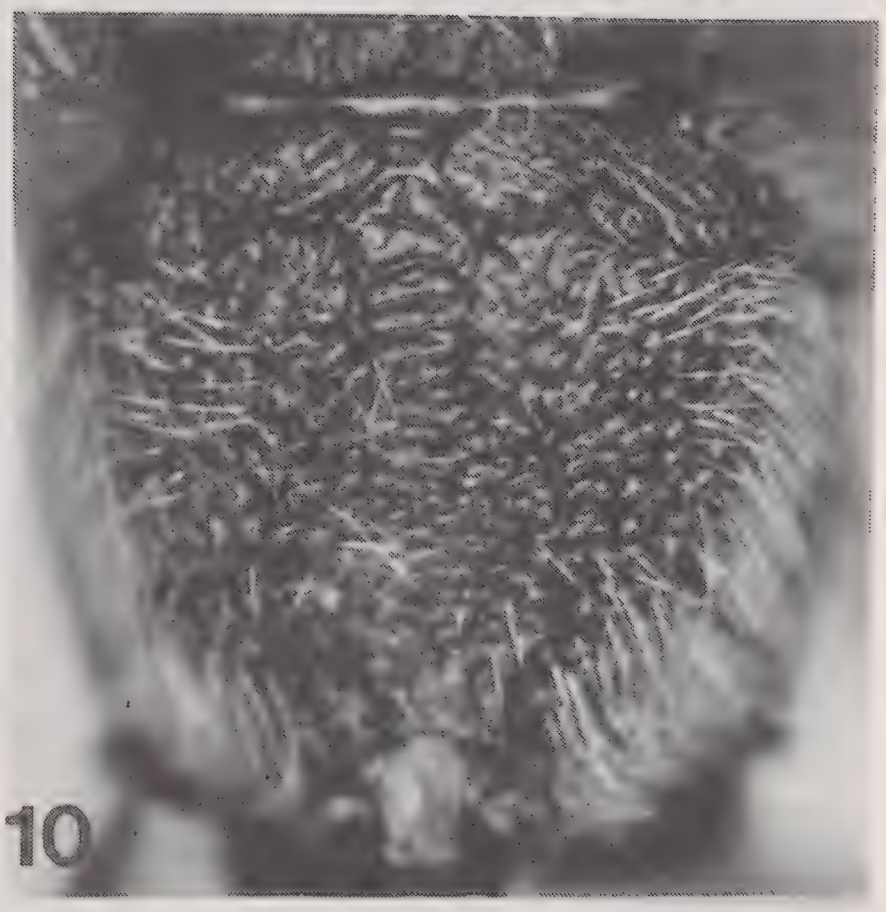
Kusigemati, Kanetosi, 1981. A new species of *Microcharops* Roman from Japan (Hymenoptera, Ichneumonidae). Mem. Fac. Agri. Kagoshima Univ., 17: 127-130.

Persson, Per Inge, 1971. "Eugenies resa". Localities, dates and labels of the insects collected during the voyage around the world by the Swedish frigate "Eugenie" in the years 1851-1853. Ent. Tidskr., 92: 164-172.

Roman, A., 1910. Notizen zur Schlupfwespensammlung des Schwedischen Reichsmuseums. Ent. Tidskr., 31: 109-196.

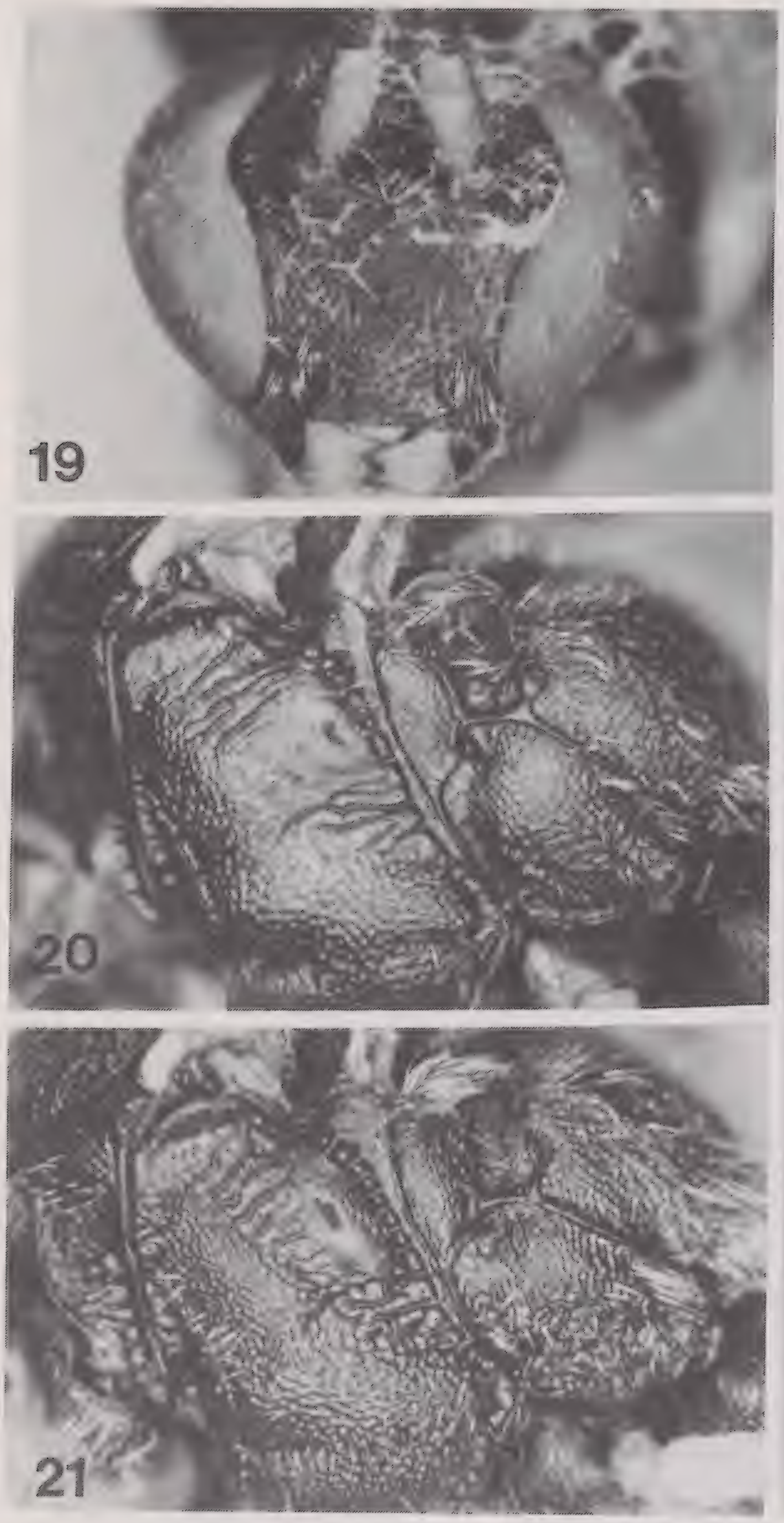
Townes, Henry and Marjorie, 1966. A catalogue and reclassification of the Neotropic Ichneumonidae. Mem. Amer. Ent. Inst., 8: 1-367.

Figs. 1-6. *Microcharops:* 1, mesopleurum of *taitica*; 2, propodeum of *taitica*; 3, mesopleurum of *bimaculata*; 4, propodeum of *bimaculata*; 5, mesopleurum of *anticarsiae*; 6, propodeum of *anticarsiae*.



Figs. 7-12. *Microcharops:* 7, mesopleurum of *nigra*; 8, face of *nigra*; 9, mesopleurum of *granulosa*; 10, propodeum of *granulosa*; 11, mesopleurum of *latiannulata*; 12, hind leg of *bimaculata*.

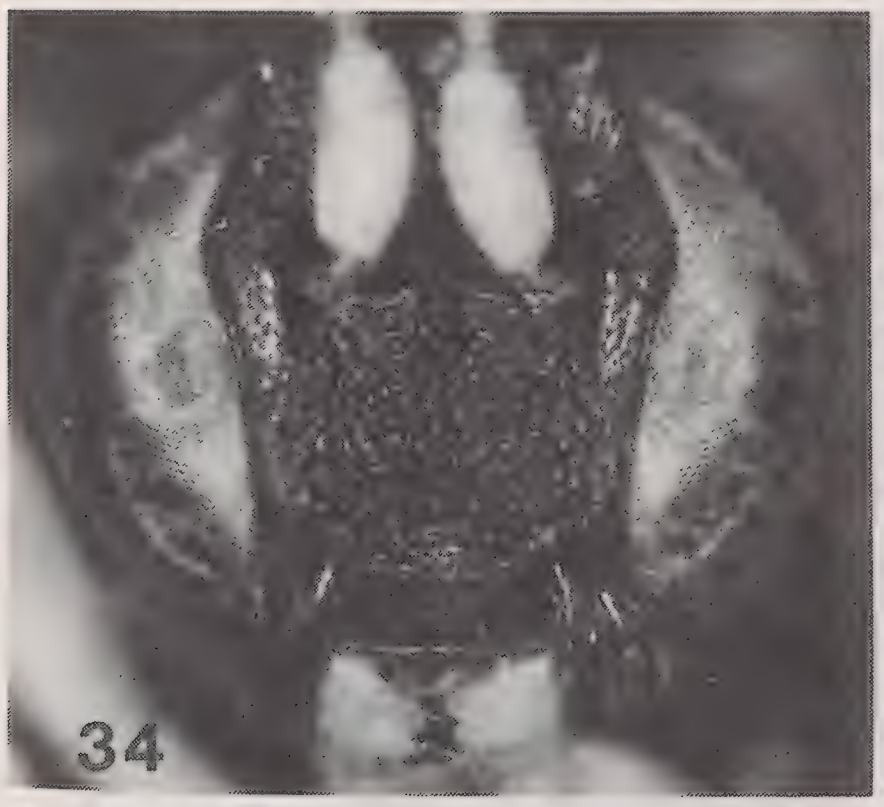
Figs. 13-17. *Microcharops townesi:* 13, face, 14, occiput; 15, wings; 16, mesopleurum; 17, propodeum. Fig. 18, *M. tibialis*, scutellum.

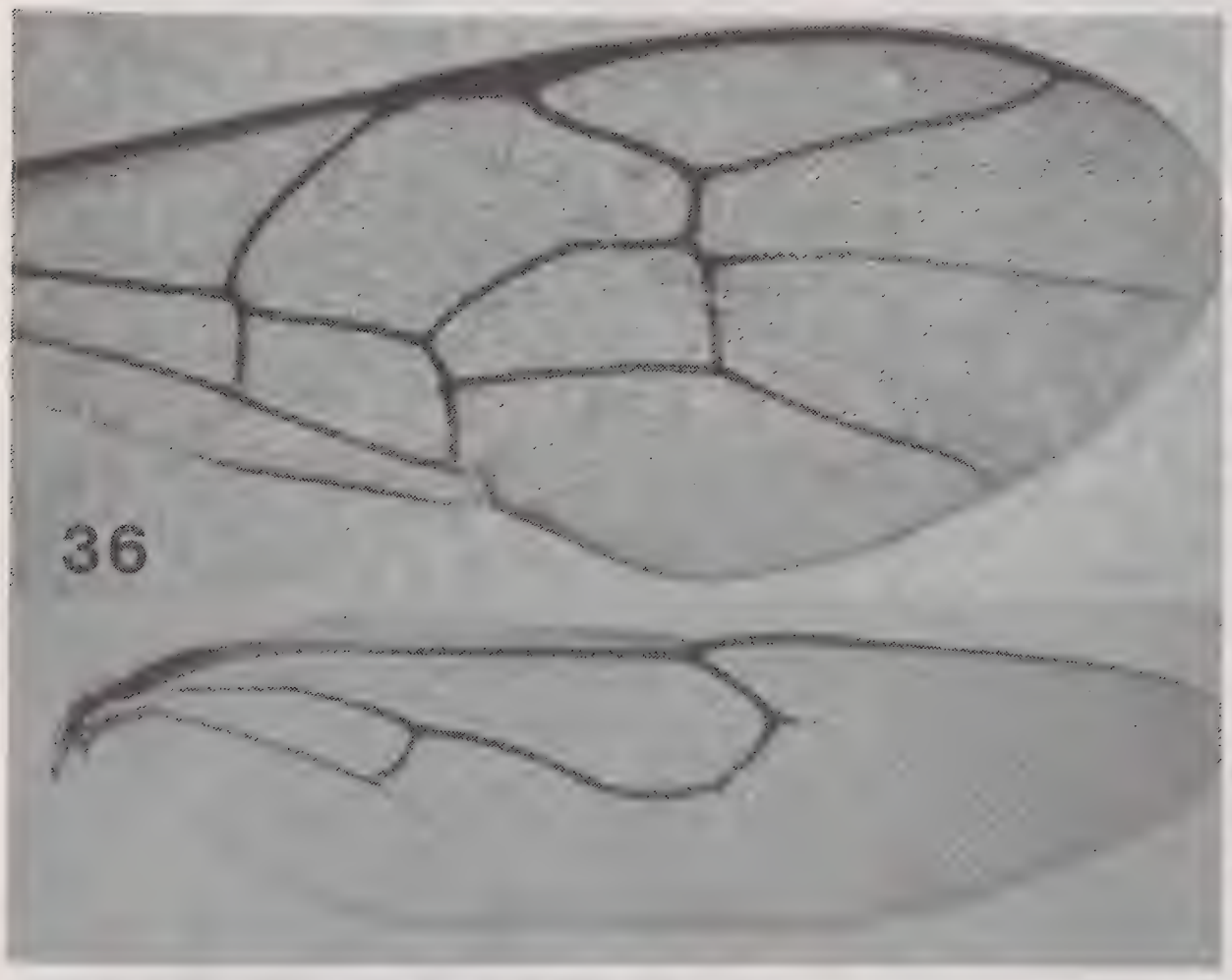


Figs. 19-23. *Microcharops:* 19, face of *peronota*; 20, mesopleurum of *similis*; 21, mesopleurum of (*pilosus*) = *fulvohirta*; 22, hind leg of *fulvohirta*; 23, hind leg of *(pilosus)* = *fulvohirta*.

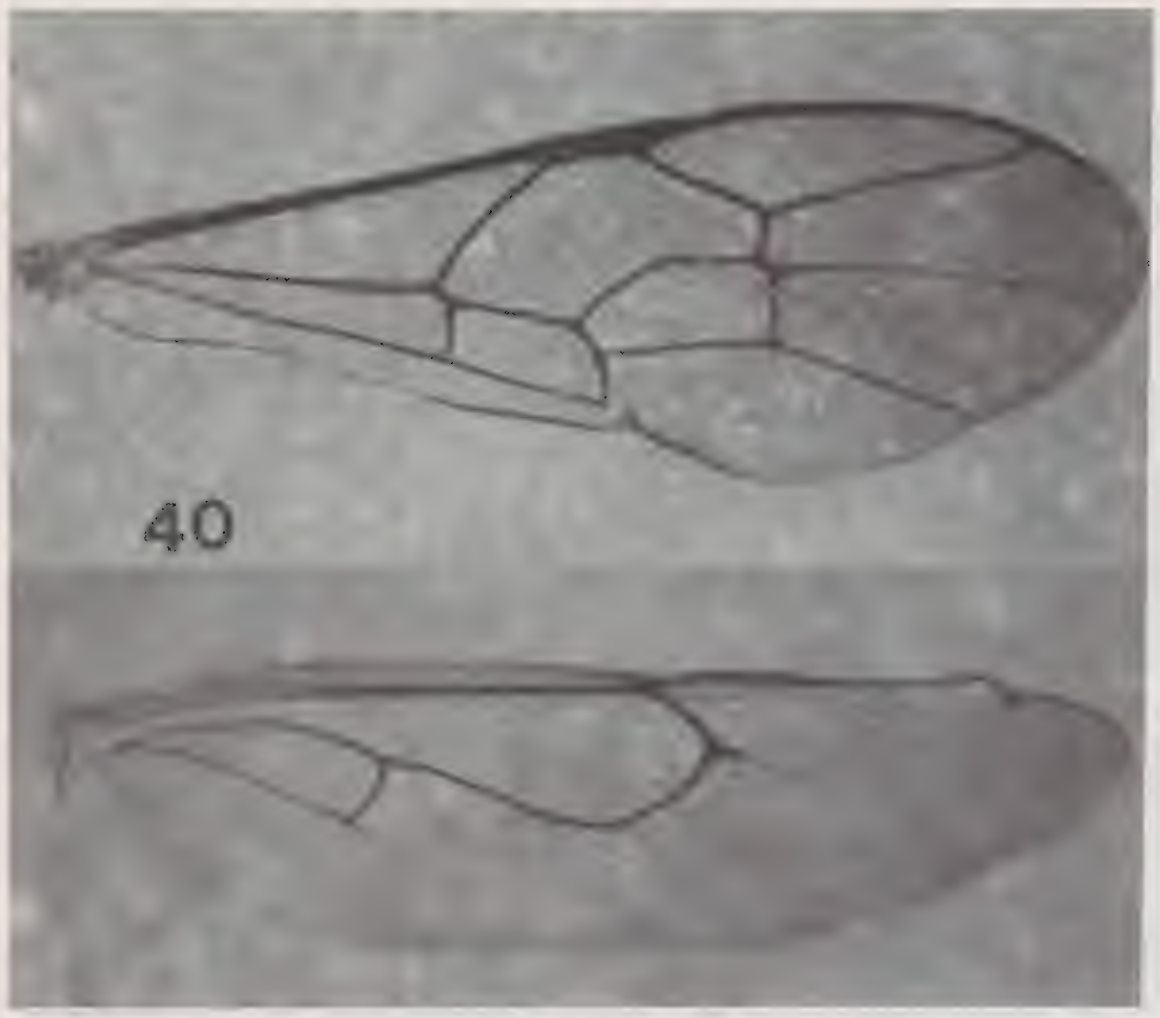
Figs. 24-29. *Microcharops:* 24, vertex of *rufoantennata*; 25, mesopleurum of *rufoantennata*; 26, propodeum of *rufoantennata*; 27, face of *anticarsiae*; 28, mesopleurum of *tibialis*; 29, propodeum of *tibialis*.

Figs. 30-32. *Microcharops flavicoxa:* 30, mesopleurum; 31, postpectal carina; 32, propodeum.





Figs. 34-39. *Microcharops:* 34, face of *flavicoxa*; 35, mesopleurum of *hipposiderus*; 36, wings of *hipposiderus*; 37, propodeum of *hipposiderus*; 38, mesopleurum of *rufigaster*; 39, propodeum of *rufigaster*.



Figs. 40-45. *Microcharops:* 40, wings of *alvarengai*; 41, mesopleurum of *alvarengai*; 42, ovipositor of *alvarengai*; 43, wings of *rufigaster*; 44, hind leg of *similis*; 45, vertex of *taitica*.